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North Richmond San Pablo Bay Study

NORTH RICHMOND - SAN PABLO BAY AREA STUDY


SUMMARY REPORT
September 1971

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North Richmond - San Pablo Bay Area

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ORIGIN OF THE NORTH RICHMOND-SAN PABLO BAY AREA STUDY

The North Richmond Study is a creative example of inter-agency cooperation. Due to the coordinated efforts of two federal, two city, one county and one state agency, plus two county-wide special purpose districts and several community organizations, North Richmond may be able to solve some of its critical problems within the framework of regional environmental concerns.

To accomplish this will involve a unique U. S. Army Corps of Engineers flood control project with emphasis on regional recreation and environmental preservation. It will involve storm drains supplied by HUD Water and Sewer Facility Grant funds, as well as HUD open space money. It will involve the interest and cooperation of many local, state and federal agencies and it is hoped that this joint action will produce a park of regional importance, key portions of a Bay-wide trail system, and preservation for educational purposes of many acres of significant marshlands.

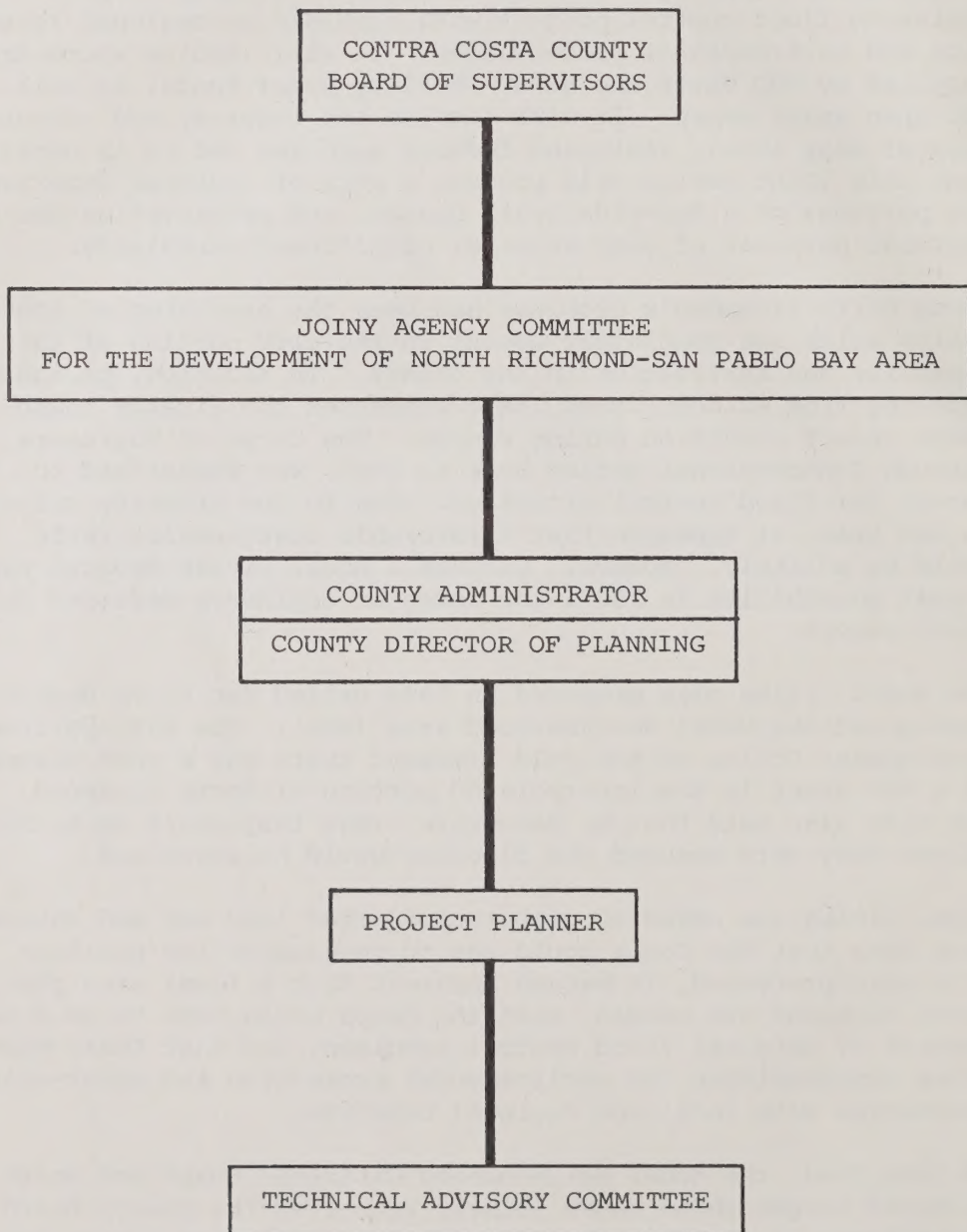
Among North Richmond's problems has been the provision of storm drains which are completely absent in the city portion of the community and ineffective in the county. In addition, periodic flooding from Wildcat Creek has exacerbated the already inadequate runoff condition during storms. The Corps of Engineers, through Congressional action back in 1960, was authorized to survey the flood control situation. Due to low property values in the area, it appeared that a favorable cost-benefit ratio would be unlikely. However, because a Model Cities Program was a real possibility in 1967, the Corps of Engineers deferred their final report.

The Model Cities plan prepared in 1968 called for storm drains throughout the Model Neighborhood Area (MNA). The Metropolitan Development Office of HUD told Richmond there was a good chance of a 90% grant in the incorporated portion of North Richmond. But they also said that by Executive Order they could do nothing unless they were assured the flooding would be corrected.

Model Cities was asked to prepare projected land use and development data that the Corps could use to re-examine its position. As this work proceeded, it became apparent that a local area plan for North Richmond was needed, that the Corps would have to do a major restudy of original flood control premises, and that there were prime opportunities for environmental protection and water-oriented recreation with local and regional benefits.

In late 1969, the Model Neighborhood Citizens' Board and North Richmond Neighborhood House jointly requested the County Board of Supervisors to establish a mechanism for developing a plan for this area, and to assist in applying for a HUD 701 grant. The County, by resolution, established the Joint Agency for the Development of the North Richmond-San Pablo Bay Area in February of 1970 and obtained a 701 planning grant in July.

ORGANIZATION STRUCTURE AND OPERATING PROCEDURES



The North Richmond-San Pablo Bay Area Study is funded by a 701 grant from the U. S. Department of Housing and Urban Development. The grant is administered by the California Council on Intergovernmental Relations.

The Joint Agency Committee was formed by resolution of the Contra Costa County Board of Supervisors. It consists of representatives from public agencies and community-based organizations with jurisdiction or interest in the area. These include: Contra Costa County, City of Richmond, City of San Pablo, East Bay Regional Park District, San Francisco Bay Conservation and Development Commission (BCDC), Contra Costa County Flood Control and Water Conservation District, Richmond Model Neighborhood Citizens' Board, North Richmond Neighborhood House, San Pablo-Parchester Community Organization, and Flood Control Zone Number 7. In addition, the Consultant to Contra Costa County and Congressman Jerome Waldie sit as ex-officio members.

Functions:

- ° Provides policy guidance to technical management
- ° Sets policy through evaluation of alternatives presented by staff
- ° Coordinates policy among concerned jurisdictions and resolves conflicts of interest
- ° Recommends approval, endorsement and adoption of plans and policies to participating jurisdictions

The Technical Advisory Committee was appointed by the Joint Agency Committee and consists of representatives from all local, regional and state agencies making contributions of service as the local share of the 701 planning grant.

These include: U. S. Army Corps of Engineers-San Francisco District, San Francisco Bay Conservation and Development Commission (BCDC), State Water Quality Control Board-San Francisco Bay Region, Bay Area Air Pollution Control District, East Bay Regional Park District, City of San Pablo Planning Department, North Richmond Neighborhood House, HUSCICON, and San Pablo Sanitary District. Contra Costa County departments consist of the Administrator's Office, Flood Control and Water Conservation District, Planning, Public Works, Building Inspection, Assessor's Office, Housing Authority, and Education. City of Richmond agencies comprise the Model Cities Program, Land Agent, Planning, Parks and Recreation, and Public Works.

Functions:

- ° Provides technical advice, guidance and data to the study
- ° Acts as clearinghouse for evaluation of technical matters

The County Administrator is in charge of the study as designated by the California Council on Intergovernmental Relations. The County Director of Planning acts in his behalf to oversee the program to its successful completion.

The Project Planner is in the County Planning Department and is responsible to the Director of Planning.

Functions:

- ° Serves as secretary to the Joint Agency Committee and Chairman of the Technical Advisory Committee
- ° Develops budgets, work programs and work outlines
- ° Coordinates Technical Advisory Committee and outside consultants to assure conformance with work programs and successful completion of tasks
- ° Prepares reports and graphic presentations for Joint Agency Committee and community organizations
- ° Works with various agencies and citizen groups as necessary and appropriate to accomplish study objectives.

OBJECTIVES OF THE PLAN

1. To urge the early construction of a storm drain and flood control system in North Richmond.
2. To use the flood control project to enhance the existing residential environment.
3. To concentrate intensive recreational facilities along Wildcat Creek, the closer of the two creeks to the existing community, and allow San Pablo Creek to remain in as natural a state as possible.
4. To upgrade the physical environment north of Wildcat Creek in order to expand the existing community to a viable size so that North Richmond can support a variety of commercial and community facilities that it does not now have.
5. To rehabilitate or replace substandard housing and fill in vacant lots with new housing in the existing community.
6. To provide for the recreational needs of the community in a manner that also accommodates county-wide and regional uses.
7. To utilize the Bay shoreline for recreational as well as industrial use and increase public access to the water.
8. To see the sanitary landfill site converted to park uses as soon as practicable, although enhancement of the rest of the area is not dependent on it.
9. To conserve the marshland, both as a valuable and diminishing resource in itself and as an unique ecological teaching resource.
10. To encourage the enrichment of Verde School through special opportunities for orientation to the natural resources.
11. To utilize proposed recreational facilities for local economic development.

PHYSICAL CHARACTERISTICS OF NORTH RICHMOND

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The focus of the North Richmond-San Pablo Bay Area Study is an area of approximately 1,800 acres lying west of the City of San Pablo on the shores of San Pablo Bay. The study area is defined by the Southern Pacific and Santa Fe Railroad tracks on the east, by the Bay on the west, by Hensley Industrial Tract in the City of Richmond on the south, and by Haas Avenue on the north.

The area comprises the common floodplain of Wildcat and San Pablo Creeks, which traverse the study area running west into the Bay. More than half of it is marshland and tidal flats, a flat plain broken only by riparian vegetation along the creeks. It contains the built-up community of North Richmond, located one-third within the City of Richmond and two-thirds within the County of Contra Costa. North Richmond is a residential community of 4,400 people, surrounded by industry and physically isolated from both Richmond and San Pablo. The community consists of some 190 acres, although 12% is vacant. Of the total study area acreage, 44% is vacant land.

Major industries in the area include Standard Oil Company, Allied Chemical Corporation, Chevron Chemical Company, and Richmond Sanitary Service.

Most of the other industries in the area are small-scale. In addition, there are some warehouses, a large number of auto wrecking yards and a substantial nursery industry.

At one time the area was used primarily for truck farming, grazing and hog raising. Even today North Richmond retains a rural quality that offers a pleasant contrast to nearby urban areas. However, North Richmond is a poor community, too small to support the facilities necessary to improve the quality of life in the area. Commercial support facilities are minimal and, at best, marginal. Other than the Shields Neighborhood Facility being constructed by the City within its jurisdiction, there are no significant public or cultural recreational facilities for the residents.

HOUSING

North Richmond contains approximately 1,400 dwelling units. In 1949, multiple residence zoning was adopted for the city portion. This stimulated construction of new rental units and the conversion of single family homes into multiple rental units. In 1969, this area was rezoned to single family controlled development (R-1 CD), while the county portion remained in duplex zoning. According to a 1968 land use survey, about 45% of all dwelling units are in duplex or multiple unit buildings, as compared to 30% in Richmond. The high proportion of multiple units tends to limit home ownership.

The mobility rate for North Richmond has been lower than for the rest of the county in recent years. This probably reflects limited incomes and development patterns rather than community stability. The average annual rate of household turnover in North Richmond appears to be about 11% per year. About 40% of the families in the community have lived there since before the closing of the war housing projects.

North Richmond has about the same proportion of renters to owners as the City of Richmond, two-thirds to one-third, but North Richmond has a fairly large proportion (18%) of low-rent public housing in relation to other types of dwelling units. Home ownership is more prevalent (35%) than might be expected. There are indications that some landlords tend to be former homeowners in the area, and have relatively small individual holdings. These holdings may serve to link and involve them with continued efforts to improve North Richmond.

INDUSTRY AND COMMERCE

In the North Richmond study area there are 58 industries that have 3,207 employees. None of these are minority-owned, except some of the auto wrecking yards, nor employ more than a handful of community residents. Total minority employment is higher than community employment because neighborhood conditions provide incentive for minority employees to seek housing elsewhere.

Commercial enterprises in North Richmond consist primarily of small grocery stores, barber shops and beauty salons, and cleaners. Most of these are owner-operated, marginal businesses.

There are approximately 30 small businesses in the North Richmond community. In the entire Model Neighborhood Area (North Richmond, Iron Triangle and Southside) only 130 businesses are minority-owned and operated.

SOCIO-ECONOMIC CHARACTERISTICS OF THE COMMUNITY

HISTORY

Although the City of Richmond was established in 1901 with the advent of the oil refinery and railroad ferry service, the origins of present day North Richmond date back to World War II when shipbuilding activity in the City sparked the influx of over 12,000 southern Blacks, particularly from Texas, Oklahoma, Arkansas, Louisiana and Mississippi. At that time there were 23,600 people in Richmond of whom only 270, mostly railroad sleeping car employees, were Black. Another 250 Blacks lived in unincorporated North Richmond. The only places for the newcomers to live were in the war housing projects or in North Richmond, which was then an agricultural area.

Demolition from 1952-55 of some 20,000 units of war housing put tremendous absorption pressures on both North Richmond and the Southside section of Richmond, because 80% of the occupants of this temporary housing were Black. During this period Las Deltas, a public housing project of 288 units, was constructed in the county portion of North Richmond, and Par-chester Village subdivision of approximately 390 units was built in an isolated area one and a half miles north of North Richmond. These attempts were minor compared to the need that had been generated.

Under a 1955 redevelopment program originally instituted to utilize war housing sites, land which had not been used for temporary housing but which contained blighted homes and had been included in the 1939 annexation, was cleared of approximately 126 Black owned and occupied houses and marketed as industrial land. Hensley Industrial Tract thus created an industrial barrier between Richmond and North Richmond.

The 1955 Interim General Plan for Richmond designated industrial rather than residential use for all of North Richmond. Strong community protest led to revision of this designation in the 1963 General Plan.

In 1961, modern integrated housing in other redevelopment areas within the City at reasonable cost provided opportunities for some middle income families to move out of North Richmond.

Proposed annexation to the City of the county portion of North Richmond in 1953 and again in 1965 was defeated. In 1968, North Richmond was designated part of Richmond's Model Neighborhood area. Increased federal assistance became available to pool with local funds to upgrade recreational and community facilities and improve delivery of social and health services. Nonetheless, North Richmond still remains within two governing jurisdictions and a multiplicity of agencies delivering services of marked difference in quality and funding. Limited police protection and recreational facilities and activities are particular concerns.

DEMOGRAPHY

North Richmond, with its combination of incorporated and unincorporated territory and vacant and populated land, is a difficult area for which to draw precise limits. Whatever boundaries are used, however, racial composition remains a key facet of its identity.

Between 1960 and 1966, the population of North Richmond declined, reversing the growth trend of the 1940's and 1950's. In 1966, a special population count was sponsored by Richmond for the entire North Richmond area. This count indicated an estimated population of 4,520. Racial composition was 93% Black and there had been some shifting of the small Spanish-American population northward into the County. This compared to a total city population of 73,611 people, with a 30% Black representation. There has been a small decrease in North Richmond since 1966. The 1970 census shows 4,400 people, 94% of them Black, while the City has grown to 79,043 with a 36% Black representation.

North Richmond has a significantly greater proportion of people in the dependent years than the City of Richmond, and a greater share of pre-school and school age children. The median age in 1960 was 19.5, whereas median age for Richmond was 28.9 years. In 1970, it is 20.3 for North Richmond compared to 27.5 for the City. Between 1960 and 1970 there was an out-movement of persons aged 22-54, the most economically active ages, with an increase in the percentage of elderly. Thus, there is a heavy burden of support on those remaining.

North Richmond has almost twice as many households with six or more persons (17%) as the City of Richmond (9%) and the County of Contra Costa (9.1%). Estimates of median family size made during the last decade have ranged from 3.9 to 5.9. In 1970, according to census data, it averages 3.3, although household size may be somewhat variable due to the lure of employment in the Bay Area.

Reflecting a nation-wide pattern in low-income Black communities, North Richmond has a large number of households headed by women. About 23% in 1960, with the 1970 census showing 24%.

The 1960 census revealed that approximately 28% of the men and 25% of the women in North Richmond were unemployed. The 1965 survey of western Contra Costa County indicated that the unemployment problem is especially critical for young Black males who are not students, with 58% of those between 15 and 19 either looking for work or unoccupied. With an almost doubling of both the number and proportion of persons of that age in North Richmond, the youth unemployment problem is now even more severe.

Most North Richmond residents who are employed work at low status jobs, such as domestics, seasonal cannery workers or laborers. In 1965, over half of the employed residents were unskilled. In western Contra Costa, however, the occupational group containing the largest number of people is minor white collar, including clerical, retail clerks, foremen and service workers.* The median educational level for all adults in North Richmond was 8.2 years in 1960.

In 1970, the County Department of Social Services reported that nearly 45% of the North Richmond population was receiving public assistance. The major category is "Aid to Families with Dependent Children". The average AFDC grant among one-parent families is \$174 per month, and among two-parent families with an unemployed head of household, \$196.

Because of age and family structure, low occupational levels, high unemployment, and dependency on public assistance programs, 1960 median incomes in North Richmond was \$4,402. The median income in the City of Richmond was \$6,851, and in the County, \$7,327; the national average was \$5,660. In 1960, 25% of families in North Richmond had incomes below the nationally established poverty level of \$3,000, compared to 17% in Richmond. The 1970 census figures are not yet available for median family income.

However, indicators from welfare rolls show an increasing concentration of low-income families in North Richmond over the past ten years.

*This occupational division comes from "West Contra Costa County Household Survey, 1965", conducted by Survey Research Center, University of California, Berkeley.

EXISTING AND PROPOSED LAND USE AN ANALYSIS

The area under consideration in this study cannot be considered an entity by itself because it is not clearly bounded nor independent of adjacent land. Nonetheless, an indication of amounts and percentages of land by major use categories helps to describe the area. Predominant uses are industry, housing, and agriculture, specifically commercial greenhouses. Much of the land is vacant.

LAND USES*	Acres	Percentage
Agriculture, Greenhouses	90	5.1
Housing	191	10.8
Commerce	3	.2
Light Industry	143	8.1
Heavy Industry	177	10.0
Sanitary Landfill Site	325	18.3
Sewage Plant	35	1.9
Recreation	4	.2
Community Uses, i.e. Schools, Churches, Non-Profit Organizations	32	1.8
Vacant	772	43.6
TOTAL.....	1,772	100.0

Zoning in the area with some changes dates from World War II. Zoning classifications and their application are based primarily on traditional practices and in some cases do not reflect present situations.

NEW FACTORS IN THE OVERALL RICHMOND SETTING

Some of the main considerations affecting North Richmond are new since the last official study in 1963. They include: (1) the proposed Hilltop Shopping Center, (2) the BART station in downtown Richmond, (3) revised downtown redevelopment plans, and (4) the proposed containerized port development.

Another changed factor is BCDC landfill regulations based on the Bay Plan, adopted in 1969. East Bay Regional Park District expansion of their upland park area through acquisition of Wildcat Canyon is also a relatively new element, making recreational development and an extensive trail system in the study area both desirable and feasible.

*All categories include streets.

On the negative side, Hensley Industrial Tract has been slow to develop, and a number of established as well as new industrial firms have left Richmond or reduced their work force.

MAJOR ISSUES AND ATTITUDES AFFECTING LAND USE IN 1971

In addition to new elements in and around the study area, there are new attitudes and questions being aired which affect land use recommendations:

1. There is concern over environmental issues with special reference to air and water pollution, solid wastes management, and open space and resource conservation. One of the significant results of the BCDC Plan has been increased general knowledge of the significance of wildlife habitats and natural ecosystems.
2. Population growth and urban development are areas of expressed concern, as is the need to develop and support mass transit as a partial answer to traffic congestion, smog, and the suburban exodus.
3. New criteria for policy-making are being accepted and implemented by many public bodies, especially at the federal level. Of top priority is alleviation of poor living conditions for impoverished minority groups and the recognition that the expressed needs and desires of these communities should be respected.

LAND USE ANALYSIS

In order to assist the Corps in its flood control survey, projections of future growth hinged upon certain key land use decisions. In some areas, final decisions could not be made without further study, but reasonably definitive recommendations were needed for Corps calculations. Some decisions will ultimately rest on the kind and level of flood protection to be provided: however, the extent of probable future residential development and the character and degree of recreational development are the major elements in the proposed development plan for North Richmond.

1. The Starting Point, 1969 Sketch Plan

The North Richmond-San Pablo Bay Area Study is based on a preliminary proposal which indicated a renewal and increase of housing in the existing community, new residential uses on vacant land between the creeks east of the proposed North Richmond Bypass, preservation of nurseries and other existing industry in the area, and a possible combination of housing and light industry north of San Pablo Creek.

West of the Bypass on vacant land, a combination of light industry, marshland preservation, recreation and outdoor education was proposed. Richmond Sanitary Service land was shown as future regional park in line with their studies and the Richmond General Plan.

More intensive studies and discussions with individuals, groups and agencies led to refinement of the preliminary plan. Some reasons for the recommendations are discussed below, especially those relating to location, existing land use and socio-economic considerations. Environmental concerns are given in later sections.

2. Intensification and Expansion of Residential Uses

Present residential land will be continued in residential use. Although vacant land within the existing community will provide for some housing expansion, it is recommended that the undeveloped land between the creeks, except for land occupied by nurseries and industry, be used for residence. There are a number of reasons for this recommendation.

- a. Present residents are anxious to make sure that their community becomes larger and more attractive. Their desire is based on the feeling that while North Richmond is a place where they would like to remain, there is inadequate variety and choice within the neighborhood.
- b. Expansion of the community is critical to its viability and capacity to upgrade itself: as it presently exists, North Richmond is too small, too poor and too isolated. By expanding residential uses between the creeks, the size of the community can be roughly doubled.

The North Richmond community is somewhat smaller than the minimum size usually considered a neighborhood (able to sustain its own library, school, convenience goods stores, et cetera), although there are no absolute rules about size and community viability. It depends in part on the level of services provided within the community and in part on the income levels of the residents. Analyses of required market support for a small grocery store indicate that especially in low and moderate income areas, an appropriate size might be 3,000 to 5,000 households or 8,000 to 14,000 people. Such a population can support modest convenience shopping and generate demands for more adequate transportation, and more variety in recreational and cultural activities, and services in general. Actually, a supermarket, medical clinic, and many other desired facilities would require a still larger population.

A neighborhood of low and moderate income families must be oriented to urban service levels because of their inability to travel long distances for services or to maintain them within the community. Thus, the lower the income of the residents, the larger a population base is required.

The question of viability in this case relates not only to size but to pressures on the community and its ability to become more heterogeneous. Pressures to isolate, shrink and eventually eliminate North Richmond have always been strong.

3. Relationship Between Recreation and Housing

Projected recreation made possible by the flood control project becomes more desirable if combined with adjacent housing. On the one hand, the justification for investment of public funds is dependent upon use of recreational facilities by local as well as regional residents. On the other hand, creek development for recreation makes it possible to provide a more attractive residential neighborhood and thus uses flood control to upgrade the existing community. In addition, the proximity of North Richmond to a major shoreline park and increased opportunities for public access to the Bay will provide further incentive for nearby housing development.

It is also believed that an enlarged community with physical ties to regional recreation will become less isolated socially and economically because of increased interaction between various socio-economic groups.

4. Relationship to Western Contra Costa County

Revitalization of the existing North Richmond community and its expansion between the two creeks will contribute to the in-filling of previously passed over urban land. In turn, this will provide greater impetus to the renewal of older parts of San Pablo and Richmond.

Development of the Hilltop Shopping Center and adjacent land for residence fills in a gap and tends to redirect future growth in a southwesterly direction.

Improved residential potential in North Richmond also affects the northern part of the Iron Triangle, strengthens the downtown, and helps protect the investment in and potential value to Richmond of the BART station and many other existing or planned facilities west of 23rd Street. The use of vacant land and flood control to bring about this improvement in residential potential is a key element in the North Richmond Plan.

5. Industrial Land in North Richmond

Industries in the study area include both heavy and light industry in terms of existing use and zoning. Land designated for heavy industry in the Richmond General Plan is west of the proposed Bypass and is primarily owned by Standard Oil Company and Richmond Sanitary Service. Richmond Sanitary has already indicated that, once filled, the best use of its land is recreational. Standard has long considered its land reserved for potential future expansion. Studies of soil and geologic conditions indicate that there are serious problems in building to modern standards of safety, considering earthquake hazard and questions of air and water pollution. They also point to the fact that the area is prime marshland with significance for wildlife conservation and BCDC has already recommended that portions of the land be preserved for such.

In addition to the Standard Oil installation and numerous auto wrecking yards, there is a substantial amount of existing industry along the Southern Pacific line in the built-up area and north of Wildcat Creek. There is also a fair amount of industry along the spur track at Haas Avenue. This land is recommended to remain in light industrial and heavy commercial use. It is not fully developed and improvement of the land by eliminating flooding and by construction of the North Richmond Bypass to alleviate access problems should provide an important opportunity for industrial expansion.

Further studies will be needed to determine how to provide compatibility between industry and housing. In addition, the possibility of designing new housing, industrial and commercial establishments in innovative ways to increase harmonious combinations should be explored.

A major effort should be made to attract labor-intensive industry appropriate to present and potential skills of North Richmond residents to help solve local unemployment problems. The Community Economic Development Corporation (CEDC) and Richmond's Special Impact Designation should help in this regard.

It should also be noted that some of the industrial plants in this area have recently been vacated. These may provide a resource for community owned industry. These vacancies also suggest that the demand for industrial land is far from infinite and that other land uses may be more viable.

6. Reduction of Vacant Land Reserved for Industry

In general it is proposed that a combination of industry and housing be developed with special attention to making them mutually compatible and discouraging heavy industrial uses that mitigate against the desirability of increased housing development.

For many years Richmond, like other cities with a heavy industrial base, operated on the assumption that reserving large amounts of vacant land for industry was the answer to problems of unemployment and a relatively high tax rate. It does not appear that industry per se' always means jobs for unemployed residents. Since many people commute in or out to jobs, low unemployment rates and industrial land availability are not necessarily equational. Richmond has had vacant industrial land in great quantity, industrial jobs and a blue-collar orientation for years without solving its unemployment problems. Nor, has it had a significantly lower tax rate or a significantly higher level of services than neighboring cities, with or without industry.

There is no reason to suppose that traditional approaches will solve these problems. Indeed, the ongoing exodus of industrial jobs from Richmond would make it appear that continuing to set aside industrial land and even to build industrial parks, is not a sufficient answer. The shifting distribution of job opportunities between industry, commerce and services increasingly favors services and seems to indicate the need to be selective in determining the appropriate use of each piece of land.

In regard to waterfront land, proposed port development is designed to provide facilities and incentives to industry and commerce. The coastline study recently undertaken by the City is expected to review all waterfront lands and recommend their most appropriate uses. Unless these studies indicate new and unusual problems, it is recommended that the shoreline along San Pablo Bay, which is not deep water, be kept in open space, recreation and conservation uses, backed up by housing which will be enhanced by these uses. Housing development may even have the potential to generate an extensive and bona fide industry of factory fabrication of housing elements.

7. Local and Regional Commerce

Proposed increases in housing are expected to provide the base for more adequate local commercial services. There is ample room for expansion of commerce in North Richmond, as well as for consolidation and stabilization of existing commercial enterprises.

In developing detailed plans for recreation, it is recommended that opportunities for commercial concessions employing, or owned, by residents be investigated. While these are not expected to have a large impact, the recreation setting can provide the foundation for concessions of various sorts, including restaurants, small boat rental and repair, bait shops, and sport equipment rental. It is also believed that a Black Cultural Center in the area, designed to use modern exhibit methods and multi-media techniques, while it would require non-profit sponsorship, might also provide jobs and some high quality commercial opportunities.

8. Summary

It is strongly recommended that approaches to land use planning and zoning decisions be considerably more flexible than has historically been the case. It is believed that industry and housing can be good neighbors if proper planning and cooperation are achieved. The need to use existing urban land to better advantage as an alternative to expensive urban sprawl is a matter of widespread regional concern.

The cost of letting a blighted residential neighborhood remain blighted and of allowing such an area to reduce industrial and commercial potential of adjacent lands is substantial. Ways of not only improving housing and the physical setting for housing but of improving the appearance and compatibility of industrial plants must be sought.

The plan for the North Richmond-San Pablo Bay Area proposes to reorient this part of the Richmond community to face the Bay rather than turning its back on the waterfront. It also proposes to encourage an imaginative approach to Richmond's potential.

FLOODING AND DRAINAGE

Flooding in the North Richmond area is a three-pronged problem, Wildcat and San Pablo Creeks have inadequate capacities to contain runoff from storms that occur nearly every year. There is almost complete absence of storm drains in this virtually flat area. The westerly portion of the study area, consisting of marshland and mudflat, is inundated during periods of high tide.

Thus, runoff from winter storms, combined with backwater during high tides, cause the creeks to overflow their banks and water to flow into North Richmond, causing flooding or ponding along most of the streets. Since there is no storm drain system to help carry off this excess water, flooding results in overloaded sanitary sewer facilities.

STREAM FLOODING

Wildcat and San Pablo Creeks drain adjoining basins lying northeast of Berkeley in the Berkeley Hills-San Pablo Ridge area. Both creeks flow northwest through canyons, west through San Pablo and part of Richmond, and empty into San Pablo Bay north of the Standard Oil refinery. Wildcat drains a long, narrow area of approximately 11 square miles and San Pablo, with its tributaries, drains about 42 square miles. The two creeks come within 500 feet of each other in the City of San Pablo, and share a common floodplain downstream from 23rd Street. During a Standard Project Flood, the inundated area would comprise approximately 2,000 acres.*

Wildcat Creek is about 11 miles long and San Pablo Creek is about 17 miles long. The terrain of their upper reaches is predominantly steep rolling hills ranging from 1,000 to 1,500 feet in elevation.

Flooding has occurred in the lower reaches of both creeks from approximately Church Lane downstream. Because of the common floodplain, inundation can occur from floods on either stream or from a combination of both. Studies show that there is a 33% chance of overbank inundation in any given year, particularly from Wildcat Creek, which floods more regularly even though San Pablo Creek drains a larger area. In addition, flooding often occurs several times a year, as was the case in 1970. Recent years in which major flooding has occurred include 1952, 1955, 1958, 1962, 1966 and 1970.

There are two small reservoirs on Wildcat Creek, both within the confines of Tilden Regional Park. These reservoirs, which intercept runoff from only three square miles at the upper part of the basin, are designed for recreational purposes. Their influence in controlling flooding at downstream points is insignificant.

* Standard Project Flood-a hypothetical flood which is estimated to result from the most severe storm of record in the general region of the basin of the study (standard project storm), occurring at a time when antecedent conditions are favorable to runoff, excluding extremely rare events.

There are two relatively large reservoirs in series on San Pablo Creek, owned and operated by the East Bay Municipal Utility District. EBMUD has a terminal water supply reservoir of 43,000 acre-feet on San Pablo Creek, San Pablo Reservoir, and another of 67,500 acre-feet on a tributary, Briones Reservoir.

San Pablo Reservoir has a drainage area of 32 square miles while Briones Reservoir drains approximately eight square miles of a tributary basin upstream. These reservoirs are operated for storage of importated water and have no assigned flood control storage space.

Analyses of existing channel conditions and review of historical flood data for Wildcat and San Pablo Creeks indicate that channel capacities are inadequate to pass floods of even relatively minor magnitudes. The channels become progressively smaller in the lower reaches. Sinuous alignment, inadequate culverts and bridges causing debris jams, growth of brush and trees in the channels, and sedimentation all cause flooding.

Sedimentation is particularly acute because of steep slopes and soil characteristics in the upper watersheds. The major source of sediment is from erosion of the channel and from unprotected rangeland. Slides caused by saturated unstable soils have deposited large amounts of sediment in the study area in the past and as a result of continued deposition of materials by floodwaters, Wildcat Creek is now about four feet higher than surrounding land.

The estimated capacity of Wildcat Creek varies from 400 c.f.s. (cubic feet per second) downstream from the railroad bridge to about 900 c.f.s. upstream. On San Pablo Creek capacity varies from 600 c.f.s. near the mouth of the creek to 2,000 c.f.s. upstream of the railroad bridge. A storm with a one percent chance of occurrence would bring 2,300 c.f.s. down Wildcat and 5,100 c.f.s. down San Pablo.

LOCAL DRAINAGE

In addition to the absence of storm drains throughout most of the area, other drainage deficiencies include:

1. Use of streets as channels to carry stormwater runoff.
2. Valley gutters and undersized culverts across the streets.
3. Drainage ditches without adequate size or slope.
4. Open ditches on public and private property which retain stagnant water and create a menace to health and safety.

5. Tidal effects upon storm drains resulting in ponding in streets and on private property.
6. Culverts and valley gutters which cause obstruction and hazard to pedestrian and vehicular traffic.
7. Undersized or otherwise inadequate railroad culverts.
8. Inadequate inlet structures to storm drains.

TIDAL PROBLEMS

Tidal problems are largely confined to land areas below elevation ten. Large areas of marshland are subject to inundation during extremely high tides. Higher land does not have adequate drainage facilities to carry off water during high tide and there are streets in some of the low lying residential districts that are subject to inundation during this phenomenon.

Certain land uses will not be damaged and may actually benefit from periodic flooding; proposed wildlife preserves are an example. Occasional flooding of existing marshes can enhance the environment for birds which frequent Bay mudflats and shorelines. Drainage channels for carrying stormwater from higher elevations can be designed in such a way that they improve the habitat for wildlife.

Areas to be used for other purposes require channel improvements and adequate drainage facilities to protect them from flooding. In the southwest portion of the study area in the general vicinity of Vernon Street, it is proposed to protect existing development from tidal and surface runoff effects through the construction of a drainage system protected by the proposed North Richmond Bypass, which will serve as a levee, and a pumping plant to discharge stormwater during periods of high tide.

Average daily fluctuation between mean higher high tide and mean lower low tide is 5.0 to 6.0 feet. The highest estimated tide is 5.66 feet based on 1929 Sea Level Datum. This does not take into account wind effects which can add up to two feet to normal tidal elevation. A combination of tide and wind can occasionally result in a water elevation of between 7.5 and 8.0 feet.

To insure that future development is protected, should flood control measures not be undertaken, the Ordinance Code of Contra Costa County, Division 4, Title 8, Sections 8400 to 8600, requires the top curb elevations to be no lower than 7.5 feet. Other county ordinance require lots to drain to the street with a 2% slope. Under these conditions and assuming an 18 inch crawl space for wood joist construction, the normal finished floor elevation of a house would be no lower than 9.5 feet. Houses in North Richmond are approximately four feet lower than standard.

FLOOD CONTROL

A Corps of Engineers survey for flood control on Wildcat and San Pablo Creeks was authorized by the Flood Control Act of 1960. A preliminary draft prepared in 1967, was deferred because no plan of improvement could be found at that time to be economically justified on the basis of primary flood control benefits alone.

However, a Model Cities Program was under consideration in Richmond and in 1969, Model Cities submitted projected land use and development data to the Corps to augment the original survey. It soon became clear that extensive plan preparation was needed and that the Corps would require additional time for substantially new studies.

Originally, the Corps envisioned a mere update of the previous survey. However, in accordance with the Rivers and Harbors Act of 1970, Section 209, ERL165-2-20 and ERL165-2-500, which expands areas of concern from simple flood protection to the broader objectives of social well-being, environmental quality, and regional impact, they are currently embarked on a new study of flood control alternatives that include environmental protection, regional recreation, and social well-being, as well as economic efficiency. It is worthwhile to point out that, should the project not be found economically justified, the Corps' interest in the North Richmond project may continue as a demonstration project to test these new guidelines and explore ways of cooperating with the objectives of Model Cities Program nationally.

There are three basic structural alternatives under consideration: independent channel improvements on both creeks, the diversion of stormwater flows from Wildcat into San Pablo Creek and a limited plan of channel improvements on Wildcat alone. Diversion mechanisms would not be triggered in the case of normal stream flows but during storms excess floodwaters would be diverted from the narrow and inadequate channel of Wildcat Creek into the wider and improved channel of San Pablo. Toward this end, two diversion plans are being investigated. One would divert around 23rd Street where the two streams come closest together. The other would divert near the railroad tracks around 13th Street. Although the capacity of San Pablo would need to be greatly increased to accommodate combined runoff, a sincere attempt to protect the natural character of the creek would be made.

The third alternative, work on Wildcat only, is of such limited scope that it would advantage the North Richmond community only by resolving the immediate flooding problem. It would protect a small area within the floodplain and thus would not facilitate the development of housing between the creeks so vitally needed for the growth of North Richmond.

Further study is required to determine which of the two remaining alternatives is both the most advantageous and the most feasible. However, preliminary considerations by local jurisdictions make it appear that independent flood control improvements on both creeks may better meet the goals and objectives of the study.

STORM DRAINS

Proposed work consists of constructing a closed conduit drainage system in areas in which no system exists, eliminating gaps in the existing system, and extending the existing system to insure that water is picked up in the most efficient manner to prevent stormwater from flowing on and along streets. In addition, the low elevation of the area will require most of the stormwater to be pumped into the Bay over a tidal levee in order to insure the effectiveness of the closed conduit system.

The County of Contra Costa and the City of Richmond have applied for a \$3,000,000 HUD Water and Sewer Grant to finance the installation of storm drains in North Richmond. Application has been approved, and it is anticipated that construction will start in late 1972. HUD takes the position that though the drainage system may be effective in reducing the runoff under non-flood conditions, overriding social concerns permit funding now contingent upon future flood control.

The San Pablo Sanitary District has agreed to contribute \$250,000 toward construction of the system since a proper storm drain system will make the sanitary system work more effectively.

TIDAL ACTION

A levee proposed as part of the local drainage improvements will provide an effective barrier against tidal action. It will be constructed within the right-of-way the North Richmond Bypass and will eventually form part of the road substructure. Combining the levee with the proposed roadway thus minimizes public expenditures.

RECOMMENDATIONS

The Study recommends that the Corps of Engineers move ahead quickly with flood control and concomitant recreational improvements, that the storm drain system be rapidly expedited, that right-of-way be purchased for the North Richmond Bypass in order to allow the prompt construction of the tidal levee, and that a continuous program of range restoration and erosion control in the creek watersheds be implemented to alleviate sedimentation and erosion problems.

SOILS, GEOLOGY AND SEISMIC HAZARDS

PHYSIOGRAPHY

Study area terrain is very flat with slopes of 1-2%. The area is bounded on the west by San Pablo Bay and contains two major creeks, San Pablo Creek in the north, and Wildcat Creek in the south. Elevations range from sea level in the tidelands and marshy areas on the west to 25' +/- at the Southern Pacific Railroad tracks along the eastern boundary. More than one-half the area is tideland and saltwater marsh. The eastern half is roughly divided into residential areas in the southern portion and light industrial and agricultural uses in the northern portion.

GEOLOGY

The study area lies within the Coast Range geomorphic province, characterized by a series of nearly parallel mountain ranges and ridges that trend obliquely to the coast in a northwesterly direction. The alignment of major fault zones, fold axes, and geological units in the Bay Area emphasizes this northwestern trend.

It also lies within the well defined Hayward Fault Zone and is bounded on the northwest by the northern extension of the Hayward Fault (approximately two miles north of the center of the Study area) and on the southeast by a less well defined fault known as the San Pablo Fault. The Wildcat Fault, an active branch of the equally active Hayward Fault, runs parallel to the Hayward Fault along the eastern slopes of the Berkeley Hills. The Hayward Fault and all other faults in the East Bay are considered part of the San Andreas Fault Zone.

Geologic structure of the materials northeast of the Hayward Fault comprises sedimentary rocks of the Eocene Age (40-60 million years) to early Pliocene Age (12 million years), and are moderate to well consolidated sandstones, shales, siltstones, conglomerates, agglomerate and tuff, chert, and smaller amounts of other rock. Southwest of the San Pablo Fault the rocks are of the Franciscan formation of Jurassic Age (180-135 million years) to late Cretaceous Age (70 million) and consist primarily of dense sandstones and shale.

These two areas are markedly different in geologic age and structure from the study area which consists of Bay mud and poorly consolidated clays, sands, silts, and gravels of late Pliocene Age (2-3 million) to Holocene Age (recent). A map and report released recently by the U. S. Geologic Survey defining historic margins of marshland in San Francisco Bay indicates that a sizeable portion of the study area and all of site of the Standard Oil refinery was saltmarsh and tidal slough no more than 100 years ago. In fact, Point San Pablo was virtually an island.

The western half of the study area consists of marshland underlaid by Bay mud. Test borings for Standard Oil along San Pablo Channel and Herman's Slough indicate mud deposits where the channel empties into San Pablo Bay are 100 feet deep and get shallower as one moves eastward. At the point where Wildcat Creek enters San Pablo Channel the mud is 10' +/-.

There is much recorded evidence concerning major settlement created by loading Bay mud with fills, as well as widespread concern voiced over possible disastrous effects of a major earthquake on structures built on fill overlying soft saturated sediments. The U. S. Geological Survey has the following to say about the character of these deposits: "Suffice it to say that the high water content (generally more than 50 percent by weight); the low bearing strength; the compressibility; the moderately high sensitivity; and, in some localities, a high shrink-swell ratio, constitute factors that must be considered in the exploration, testing design, and construction of engineering projects in younger Bay mud. The properties, along with the varying thickness and grain size (and possibly mineralogy) over relatively short distances, can result in marked local differential and regional settlement and in slope instability when loads are imposed on the sediments." *

The eastern half of the study area consists primarily of alluvial deposits, which make better foundation material than Bay mud but are also subject to local swelling, heaving and differential settlement. Since only very light stresses can be imposed directly on Bay mud or alluvial deposits, the general pattern locally has been either to place engineered compacted fill over the Bay mud and design "floating" foundations, or to construct piers and pilings that penetrate through the mud to more competent underlying materials - an expensive undertaking.

The above concerns, however, are secondary to the problem of seismic risk from future earthquakes. Evidence from small earthquakes and ground motion studies indicates that the amplitude of ground motion studies indicates that the amplitude of ground motion waves is substantially greater on structurally poor ground (i.e., Bay mud, shallow fills on Bay mud, poorly consolidated deposits of alluvial material with high water content) than on rock. In other words, ground motions are amplified passing through this material and are as much as twelve times greater. The length of time of shaking is also longer on unconsolidated soils. It is well known that

*Nichols, Donald K and Wright, Nancy A., "Text and References Accompanying Preliminary Map of Historic Margins of Marshland, San Francisco Bay, California." U. S. Geological Survey. 1971.

in an area of active faulting, the condition of the ground is a more important factor than the distance from a fault.*

SEISMICITY

The San Francisco Bay Area is well known for its history of earthquakes on both the Hayward and the San Andreas Faults. Major quakes occurred in 1836 and 1868 on the Hayward Fault, and in 1838, 1865, and 1906 on the San Andreas Fault. Since 1906, shocks of Richter Scale magnitude 5+ have occurred in Walnut Creek, Daly City, Hollister and, most recently, in Santa Rosa (1969) approximately 35 miles northwest of the study area.

The most recent evidence of activity along the Hayward Fault is documented in an article in the Oakland Tribune, dated August 30, 1970. Robert Nason, a geophysicist for National Earthquake Mechanism Laboratory in San Francisco, noted that slow sideways movement of the fault (fault creep) has offset land on opposite sides of the fault by five inches since 1943. This movement was measured on Contra Costa Junior College property, the Rollingwood Subdivision, and near Road 20. All of these areas lie approximately two miles northeast of the study area.

By all modern day definitions, the study area is in a seismically active region with a known active fault less than two miles northeast.

SOILS

A special report done for the Study by the Contra Costa Soil Conservation District indicates that there are four major soils in the study area; tidal flats or Alviso, Sycamore, Botella and Clear Lake. Most of these soils have similar characteristics in terms of their capacity for urban development.

The following discussion omits consideration of the tidal flats for the time being. Other soils in the area are fine-textured, with fairly high liquid limits (20-50) and a relatively low plastic index (5-25). Their fine texture and absence of substantial amounts of clay means that they do not adhere or compact well. High liquid limits and low plasticity soils are difficult to build on. On a 1 to 7 scale developed by the American Association of State Highway Officials, with 1 being the most desirable soil for highway construction, none of these soils rates lower than 4.

* Dalrymple, G. Brent and Lanphere, Marvin A., "Potential Earthquake Hazards on Bay-fill and Marshland Adjacent to San Francisco Bay." Prepared for the State of California Bay Conservation Study Commission (later BCDC). December 1964.

In general, the permeability of these soils is slow to moderately slow with an ever-present threat of standing water. They all have a neutral or mildly alkaline quality and are suitable primarily for agriculture and large-scale landscaping. Shrink-swell behavior is moderate to high, meaning they swell considerably when wet and shrink and crack when dry. This characteristic causes severe damage to building foundations and public works such as roads, and contributes to problems of differential settlement in the area. The potential for corrositivity of untreated underground pipes is high.

The tidal flats, categorized as Alviso, have much more severe limitations for development than other soils. In addition to the fact that they contain lenses of organic material that manifest poor engineering behavior, the ground water table is no more than 1 to 2 feet below the surface. Alviso consists of a type of stratified silt and clay rated 7 for road work by AASHO. It is alkaline and this high salt content means that it has high electrical conductivity, thereby proving extremely corrosive to steel used in foundations and utility systems. Salt, unless rigidly controlled, will come up through concrete floors and foundations, creating problems with floor coverings such as asphalt tile. Alviso soils may have inclusions high in sulfides that oxidize and become acid after drainage. One characteristic unique to tidal flats is a high shrink characteristic when drained and a total inability to return or swell to their former state even when re-wet.

SUMMARY

The study area consists of geologically unstable Bay mud and alluvial deposits with no visible sign of underlying bedrock. The soils possess low-quality characteristics and are not suitable for high density residential development, high rise or low rise buildings that put considerable load-bearing strains on the ground, or complex industrial development without expensive, detailed soils engineering, geologic and structural engineering studies, and unconventional foundation design and construction techniques. In the area east of the tidelands and marshes, the soils have a greater capacity to support light foundation loads, particularly low density residential development. Ground water levels are generally below five feet and the soils are somewhat better consolidated.

RECOMMENDATIONS

The study recommends that lands west of the proposed North Richmond Bypass not be developed for heavy industrial uses as currently zoned but be left in open space and recreation, and that development east of the Bypass be oriented toward low density residential or light industrial development. Unless there are other compelling reasons, limitations due to geologic, soils and seismic factors should be strongly considered.

ENVIRONMENTAL QUALITY

In addition to high unemployment and welfare rates, low educational and income levels, substandard housing and low mobility potential, which are problems common to low-income minority communities, North Richmond suffers from a number of environmental problems. Problems of environmental quality are not however confined to a small geographic area. Air pollution, for instance, cannot be dealt with within the boundaries of a single neighborhood, since the Bay Area is one interconnecting airshed. Nonetheless, North Richmond does suffer more acutely from certain problems than other communities because of its proximity to various types of uses. The following is a discussion of five environmental problems: (a) air pollution, (b) water quality, (c) solid wastes disposal, (d) auto wrecking and (e) vector control and mosquito abatement. The data in the following sections is fairly general and is not necessarily applicable to or only to North Richmond. However, it is a start in looking at environmental ability at the neighborhood level.

a. Air Pollution

Photochemical smog is formed in the atmosphere as a result of a natural process acting on contaminants put into the air by man. Visibility reduction is the most common effect of air pollution, and is predominant during smog season between April and November.

Less obvious are effects on human and animal health, on plants and on materials, such as darkening of paint, rubber cracking and metal corrosion. Plant damage is of particular concern in North Richmond, site of a major wholesale nursery industry.

Gases produced by urban civilization are considered air contaminants. The most critical are oxides of nitrogen, carbon monoxide, fluoride, oxidant, sulfur oxides and hydrogen sulfide. All can cause visibility impairment, plant damage, and discomfort or illness in persons exposed for various periods at certain concentrations.

Some of these gases affect all areas: others constitute more of a local nuisance. For example, nitrogen dioxide is produced mostly by automobile exhaust and manifests itself in a haze that pervades the entire Bay Area. On the other hand, sulfur oxides are a problem only in the vicinity of the large oil refineries and chemical plants concentrated in Contra Costa County.

The three gases that concern North Richmond are sulfur oxides, hydrogen sulfide, and fluoride. Sulfur dioxide is a colorless gas with a pungent irritating odor. The

The burning of fossil fuels causes the oxidation of small quantities of sulfur present in the material. Where large quantities of these fuels are used, sulfur oxides are a major air pollutant. They cause considerable damage to plants and materials, and also affect human health. Significant increases of death and illness rates in large cities have been recorded during periods of severe air pollution by sulfur oxides and particulate matter.

Hydrogen sulfide is also a colorless gas, produced at refineries and sewage treatment plants, with a strong, offensive odor characterized as "rotten eggs." This is an extremely toxic gas and could pose a potential health hazard. Fluoride is produced by some industrial processes in refineries, ceramics kilns and metal processing. It damages plants and indirectly can affect animal and human health when quantities of fluoride-impregnated plants are consumed. Prolonged exposure in the diet can cause fluorosis, a bone disease found in grazing animals.

The principal reason that North Richmond is troubled by noxious odors and air pollution more than other areas is because of local wind patterns. The area is downwind of the largest oil refinery on the West Coast, together with a sulfuric acid plant and other chemical plants. Approximately one-third of the year southerly winds blow from the refinery. They are most prevalent during the summer between June and September. In addition, two-thirds of these summer winds are from 4 - 10 M.P.H. and do not move swiftly enough to dissipate odors.

During the winter months of December, January and February, 7% of the winds blow from the north and bring odors from refineries and metallurgical, chemical and metal fabricating plants. One-quarter of the time, predominantly from October through February, winds are light and variable, meaning they are stagnant or unpredictable and may bring emissions to North Richmond.

In November 1970, the Bay Area Air Pollution Control District made changes in air pollution control regulations designed to reduce sharply emissions of smoke particles, sulfur dioxide and hydrogen sulfide into the atmosphere within one year.

These changes would cut the amount of smoke particles that may be emitted from industrial sources and incinerators in half. They would also cut permissible emissions of hydrocarbons from incinerators in half.

On sulfur dioxide, the District acted to reduce permissible levels by two-thirds. The new rules were designed to reduce odor complaints substantially as well as to bring sulfur dioxide levels within state-established ambient air quality standards.

Concerning hydrogen sulfide, the District established a new rule to bring permissible levels within air quality standards and to reduce odor complaints, and acted to limit smoke and particles from sulfur recovery plants and to eliminate exceptions in the existing regulation.

Within the enactment of these measures, the Bay Area Air Pollution Control District will have the most stringent regulations on these subjects in the country. However, there are still two areas of concern with which the District must deal in order to improve the quality of air not only in North Richmond, but in the entire Bay Area. The first relates to upset-breakdown regulations, the second to odor standards. The latter has now been mandated by legislation.

To what extent human health is affected by air pollution is still a matter of debate. The United States Public Health Service has stated that air pollution, as it exists in some of our communities, contributes significantly as a cause or aggravating factor for the following medical conditions: acute respiratory infections, chronic bronchitis, chronic constrictive ventilatory disease, pulmonary emphysema, bronchial asthma and lung cancer.

Analysis of numerous epidemiological studies clearly indicates an association between air pollution, as measured by sulfur dioxide accompanied by particulate matter, and health effects of varying severity. This association is most firm for short-term air pollution episodes.

There are probably no communities which do not contain individuals with impaired health who are particularly susceptible to the adverse effects of significant levels of these pollutants. However, to show small changes in, mortality and morbidity associated with coincident higher levels of air pollutants requires extremely large populations. In small areas, these changes are difficult to detect statistically.

Although no direct relationship has been substantiated between odors and health, the community has expressed great concern over the problem of odor. Whether or not it constitutes a health hazard, the presence of continual noxious odors certainly contributes negatively to the physical environment of the neighborhood.

The State Public Health Department is in the process of training a number of residents in odor identification, the nose being more sensitive to odor than any mechanical monitoring device. Once an odor is identified, its source can be pinpointed and necessary controls instituted.

Recommendations

The Study supports the recently adopted air pollution control regulations and encourages the development of further regulations and standards by the Bay Area Air Pollution Control District so that the quality of the air in North Richmond will be supportive of upgrading the existing community and expediting proposed new land uses.

b. Water Quality

The San Francisco Bay estuary is used by millions of people who inhabit its shores - for municipal and industrial sewage disposal, recreation, commercial fishing, and as a source of aesthetic pleasure. In large measure such uses depend upon the quality of the water, which is the resultant balance between the rate at which chemical constituents are added and removed.

The principal sources of water for the Bay are the Sacramento and San Joaquin Rivers, which flow into the North Bay system. The Bay is primarily influenced, however, by tidal flows from the Pacific Ocean. This tidal action, in conjunction with water flow from the major rivers, affects turbidity, nutrient, and flow characteristics of Bay waters.

Another source of freshwater is the flow from creeks that drain land immediately adjacent to the Bay. The two major creeks that flow into the Bay through the study area are San Pablo and Wildcat. The quality of Bay waters can be altered and even impaired by discharge from wastewater treatment plants, industrial wastes, and debris carried by natural runoff from these creeks.

At one time there were many homes along San Pablo Creek that discharged septic tank effluent from leach lines into the creek. However, with the extension of sanitary sewers into the El Sobrante area, most of these houses have

been connected to the sewer system. Several horse stables also line both creeks, but the amount of droppings entering the water is so small as not to constitute a problem, according to the County Health Department. The Mosquito Abatement District, as part of their fly and mosquito control program, has been checking these stables.

Periodically the Health Department abates garbage from creek banks that has been dumped there illegally. This material could float down to the study area during heavy water flows. In addition, the County Flood Control District cleans large particles of debris from the streams after the first rains so that this material will not reduce the capacity of the creeks and cause flooding.

There are currently four major wastewater dischargers in the North Richmond-San Pablo Bay area. These are: Standard Oil, Allied Chemical, Chevron Chemical and San Pablo Sanitary District. These four dischargers and Richmond Sanitary Service participated as a group in a four year monitoring program of Bay waters in the cove east of Point San Pablo. This study was required by motion of the Regional Water Quality Control Board, the state agency that has primary responsibility for regulating waste discharges. The dischargers submitted twelve progress reports to the Board, with a final report in June of 1968. Sampling data included determinations of dissolved oxygen (DO), pH, and temperatures from several sampling stations in cove waters. One station each month was also tested on a rotational basis for coliform bacteria, biological oxygen demand (BOD) and bio-assay. Coliform samples were taken monthly from three other sampling sites. Two saltwater stations at Standard Oil were sampled monthly as a basis for comparison with samples from the cove. Effluent data from each of the discharger's outfalls was recorded.

Data from the report indicated that during the final two years of the study there was only one occasion when two samples from the cove stations were below the 5.0 mg./l minimum DO requirement. This was an improvement over the two-year prior period when a total of six samples on four occasions fell below the DO requirement. The average DO for these stations was 7.4 mg./l, well above the 5.0 mg./l minimum required to maintain fish life.

The pH levels from the cove stations indicated that no problems existed, as the range of values fell within the 6.5 to 8.5 values required by the Water Quality Control Board. The pH range at the cove ran from 7.2 to 8.5.

Temperature data from cove samples showed that there was only one value of 144 that was over the 20° C. requirement and it was 20.5° C. The average was 15.3° C. Results for the cove indicated that the average temperature there was only one degree centigrade above the average at the saltwater stations.

It is interesting to note that during the water sports season, April 1 through October 31, 1967, 96% of the coliform bacteria samples taken met state standards for ocean water-contact sports areas when chlorination was being done by the San Pablo Sanitary District, as compared to 76% of the samples when chlorination was not practiced. In addition, the San Pablo Sanitary District informally monitored three yacht harbors in the cove from January 1967 through February 1968. During this period no chlorination of effluent was practiced with the following results indicating the percentage of samples meeting state standards: Richmond Rod and Gun Club 37%, Standard Oil Rod and Gun Club 77%, Point San Pablo Yacht Harbor 46%.

During the water sports season of 1968 when the District's effluent was being chlorinated, a rise in the percentage of samples meeting state standards occurred. The following results were obtained during this period: Richmond Rod and Gun Club 76%, Standard Oil Rod and Gun Club 88%, Point San Pablo Yacht Harbor 84%.

The San Pablo Sanitary District is currently chlorinating the year 'round to meet increased requirements from the Regional Water Quality Control Board. This should help to reduce coliform counts on a permanent basis. The District is also in the process of instituting secondary treatment facilities and these should be operational by 1972. This will further improve these waters by reducing the BOD.

Biological oxygen demand samples taken during this four-year period indicated that the demand had improved during the last two years of the study over what it previously had been. The average for the first two-year period was 2.8 compared to 1.8 for the last two years.

Bio-assay sampled during the final two years of the study indicated that no samples failed to meet the requirement of "nil" toxicity or 90% minimum survival after 96 hours. There appeared to be no problem with toxicity in cove stations.

Once beneficial uses of the water are determined, the Water Quality Control Board defines water quality objectives needed to protect these uses and then prescribes discharge requirements and enforces compliance.

Of the major dischargers in the study area, Standard Oil and the San Pablo Sanitary District's requirements from the Water Quality Control Board are consistent with the Board's Bay water quality policy. Allied and Chevron requirements will be coming up for revision before the end of the year. Their new requirements will then also meet current Bay policy.

The Western Contra Costa Dump does not have waste discharge requirements and does not intentionally discharge waste effluent into the Bay. (See "Solid Wastes Disposal"). However, under State Water Resources Control Board Resolution No. 6942, dumps throughout the state will be classified as to material they will be permitted to accept. This will help protect Bay waters from possible seepage of toxic industrial wastes.

Despite these controls, however, current Bay water quality is not good enough in some shoreline areas to allow swimming or the harvest of shellfish without endangering health. Therefore, the Regional Water Quality Control Board, as mandated by the Porter-Cologne Water Quality Control Acts of 1970, has adopted an "interim Water Quality Management Plan for the San Francisco Bay Basin." It is designed to guarantee ".....a water quality control and water resource management policy that equates to water conservation: wise use, reasoned management, and adequate protection of water and water resources to ensure their preservation for the beneficial uses and enjoyment of present and future generations of people."

It is the intention of the Board to adopt prohibitions no later than July 1, 1973, for all waste discharges, which have not had substantially all toxicants and biostimulants removed, from areas of limited tidal interchange, including South San Francisco Bay, Suisun Bay, San Pablo Bay, and any embayment, slough, creek or other confined or shallow water area. Details of the areas from which such wastes are to be excluded, and the scheduling for removal of existing discharges into those areas will be specified in the prohibitions.

However, the Board feels that relatively confined water areas do not receive sufficient tidal interchange to dilute wastes at all times to concentrations low enough to prevent deleterious effects on biota, even if wastes are treated to the highest practical degree. Therefore, on the basis of presently available information, the Board feels that prohibitions of waste discharges into such areas is the most reasonable method for achieving protection of beneficial water uses. Contra Costa County is currently embarked on a study to determine its best system for disposal in order to maintain high water quality standards. Alternatives being considered include treatment in place, transport, and reclamation for re-use.

A preliminary report released recently by the U. S. Geological Survey evaluated such things as the ability of the estuary to assimilate agricultural, municipal and industrial wastes; the relation between the amount of freshwater inflow and the quality of Bay water, and the movement of water masses and entrained material within the estuary.

Weighted plastic markers placed in the water at distances as remote as 20 miles outside the Golden Gate were recovered along the shoreline of the study area. The movement of these markers not only demonstrates the existence of new bottom currents but also indicates the paths that will be followed by fluids and solids that are entrained in these currents. Thus, it appears that because of currents and tidal action, materials dumped in many portions of the Bay find their way back to the west Contra Costa shoreline.

The stringent standards for overall Bay water quality recently adopted by the Regional Water Quality Control Board, should work to assure an upgraded water resource not only in San Pablo Bay but in the total estuarine environment. Local improvements and Bay-wide measures are designed to permit increasing use of San Pablo Bay for water-contact recreation.

3. Solid Waste Disposal

Solid wastes disposal in the Bay Area is almost exclusively by means of sanitary landfill and is left almost entirely in the hands of private operators. It is the least expensive approved method of disposal and may be applied in a variety of terrains.

A number of methods are used but each involves dumping and compaction of refuse to the smallest practical volume and covering it with compacted earth or other material. Properly

operated sanitary landfills eliminate all of the health and nuisance factors associated with open or burning dumps. Great care must be taken in selection of sites, however, so that ground water will not become contaminated through seepage and surface water will not be contaminated by direct contact with refuse or drainage.

4. West Contra Costa Dump

The West Contra Costa Dump is owned and operated by the Richmond Sanitary Service and is a 325 acre site located northwest of North Richmond, adjacent to San Pablo Bay. Land holdings extend into incorporated as well as unincorporated areas. The site serves the portion of Contra Costa County lying west of Rodeo, various industries in Berkeley and Emeryville, and parts of southern Marin County. The dump accepts all types of refuse, including garbage, rubbish and industrial wastes. It has a life expectancy of some 25 years.

This is an area fill operation on mudflats and tidelots. Dikes are built using demolition material and Bay mud. Cover is applied daily. Some cover material is obtained by mining Bay mud with a dragline and drying this for six to eight months. Other cover material (bank run gravel) is purchased for areas where there will be traffic in wet weather. During the night, a portable sprinkler system is placed across the face of the fill. The area is sprayed with Bay water, mainly as a precaution against fires. Some salvaging is done, but is limited chiefly to recovery of metals.

Refuse collection and disposal in unincorporated areas of Contra Costa is regulated by County Ordinance Code. The Code requires that permits be issued by the County for the collection of refuse and operation of disposal sites. The Code also regulates storage and transportation of refuse. However, standards of operation of disposal sites are not specified in the Code. Individual operating permits issued by the County contain provisions set by the Health Officer, which are designed to prevent nuisances and protect public health. In addition, the Code requires that disposal sites be located only in heavy industrial zones.

There is a substantial limitation to development of sanitary landfill for other than recreational or open space uses. One of the more important characteristics of sanitary landfill is settlement. Settlement is erratic but very rapid the first year, with most of it occurring the first five years. Moisture absorption, relative compaction, and decay are not uniform, and therefore contribute to the unevenness of settlement under varying loads. Seepage of liquids and gases can be toxic and can also contribute to

settlement. There have been instances where gases have seeped through foundations of structures built on sanitary landfills.

Thus, the unstable nature of sanitary landfill means it has a low structural strength and rules out massive buildings. Floating types of foundation structures such as slab floors are not feasible due to uneven settlement. Structural loads would probably require piling foundations for anything other than light goods storage. Additionally, installation of utilities must be accomplished with a minimum of disturbance to the fill so as not to create pollution and odor problems.

Present landfill practices establish built-in limitations on future uses of disposal sites. The ideal situation is when construction of sanitary landfill is pursued in accordance with an established plan. Improvements in the degree of compaction by pre-treatment of bulky wastes, for example, or segregation of materials make possible a wider range of future uses.

Sanitary landfill as the primary means of solid wastes disposal can no longer be considered the long-range solution to regional refuse problems. Based on current site capacities all counties except Marin will be faced with disposal volume deficiencies by 1985. More importantly, environmental effects of current methods of handling solid wastes in the Bay Area are at least equal to amounts being spent to dispose of solid wastes. Environmental effects include public health effects like flies and rodents; aesthetic and nuisance effects associated with noise, odors, traffic and unsightliness; pollution of air and water; ecological disruption, and resource depletion. These effects provide a driving reason for improvement of the existing system.

The total quantity of solid wastes produced in California yearly exceeds 70 million tons. In the Bay Area it is in the neighborhood of 9 1/2 million tons. Only a fraction of this material is recycled or salvaged. This is particularly true of non-metal wastes. Only minor amounts of rubber, glass and textiles are reclaimed and of the over 50 million tons of paper materials produced nationally each year (2,150,000 tons in the Bay Area alone), only 20 percent is recycled.

To recycle something implies it has value. A returnable bottle is reusable. Many items have a chemical content worth reclaiming; steel and aluminum cans, for instance. Physical properties of some materials, such as glass, may be used as road or building materials. Fly ash from coal-fired steam generating plants has been used to form cinder blocks.

Recycling which emphasizes conservation of materials through reuse is of major significance. However, the primary barrier is economics; two important considerations are separation and market price.

Most materials currently recycled in the Bay Area never enter the solid wastes stream but are separated at the source, the point where a material first becomes waste. As a general rule, once materials are consigned to a collection truck, separation must be by automated means or not at all. If separated by hand, the cost of separation invariably exceeds the market price. In addition, manufacturers are not tooled up to handle an increased input of recycled materials. Processing equipment is in the preliminary development stage, and operating costs are speculative. Not only is recycling today dependent upon market conditions, but on government regulations as well. To a large extent the latter are biased against the use of secondary materials and oriented toward continued use of virgin ones.

Although it was not intended for the North Richmond Study to undertake a major analysis of solid wastes disposal, since many other private and public agencies are currently engaged in such studies, it does seem appropriate to support the concept of resource recovery because of its implications for the North Richmond community.

If components of solid wastes can be easily segregated and a firm, long-term, large-scale supply of materials guaranteed, the potential exists to establish new industries in the Bay Area designed to use recycled waste products as raw materials. Such a new industry in North Richmond, with a supply of recycled material from the nearby landfill operation, should be a high priority item for additional study. Demonstration grants are available from federal agencies for this type of local economic development and public service. The possibility of para-professional training for North Richmond residents in the field of existing solid wastes management should also be examined. Both of these explorations might profitably be undertaken in conjunction with the Richmond Sanitary Service.

Although it is understood that the present dump will be phased out only when an alternate site is available or alternate method of disposal developed, the Study supports the rapid development of such alternatives. The creation of a major regional shoreline park on this site is an integral part of the long-range plan to upgrade the existing community.

4. Auto Wrecking

In 1961, the City of Richmond adopted a comprehensive junkyard ordinance, anticipating the final elimination from the city of the problems of health, safety and public nuisance which junkyards and auto wrecking yards provoke. By the early 60's nearly all of Richmond's auto wrecking yards relocated to an area of North Richmond adjacent to the former Richmond City Dump. These Gertrude Avenue wrecking yards just west of the existing community and the yards on Parr Boulevard to the north have continued to provide problems for city and county agencies, and for residents of North Richmond.

The problems are of two types: (a) physical problems including health and safety hazards, visual blight, and crime, and (b) problems of the attitudinal effect of the presence of the wrecking yards on residents of North Richmond.

a. Physical Problems

(1) Safety Hazards

In 1970, the San Pablo Fire District was called to 80 wrecking yard fires of a total of 2,000 fire calls for the entire district. About 95% of these fires were in yards on Gertrude Avenue. The inordinate number of wrecking yard fires represents a more complex problem than frequent calls to an out-of-the-way spot where fire calls mean treacherous footing, muddy ditches, and the danger of toppling piles of jagged metal. Although the Fire Department has never encountered problems of access, roads to the wrecking yards are often blocked by trucks, cars, and general debris. Firefighters suspect that fires are set on purpose to accomplish what Bay Area Air Pollution Control District regulations prohibit, the open burning of extraneous, non-metal materials and stripping of paint and enamel from wrecked cars. None of the yards have sprinkler systems and there is inadequate pressure for firefighting efforts at those water connections that do exist. However, the East Bay Municipal Utility District has just extended a water main along the southern side of Gertrude Avenue, and it is hoped the yards will all connect to it in the near future.

A serious threat to the safety of the community is the fact that trucks hauling automobile bodies, cranes, and other types of equipment, employee and customer cars all pass through North Richmond on their way to the yards, thereby increasing danger to pedestrians.

(2) Health Hazards

There are numerous conditions that exist at the wrecking yards that can contribute to the formation of health hazards. The ever-present piles of refuse, as well as uncontrolled weed growth, can serve to harbor populations of rodents, vermin and insects.

In addition, the casual manner of refuse disposal means that various types of debris, not the least of which are tires, end up in Wildcat Creek and the Gertrude Avenue flood control channel, thereby polluting the water, rendering it unfit for recreation, and minimizing whatever flood control potential exists.

A third health hazard relates to noise pollution and dust churned up by heavy industrial traffic.

(3) Problems of Appearance

Although both the city and county junkyard ordinances provide specific restrictions intended to insure the orderly appearance of all junkyards and wrecking yards, the enforcement of these regulations has been difficult and time-consuming.

(4) Problems of Crime

The wrecking yards are isolated and can thus easily provide a harbor for criminal activities. Each applicant for a wrecking yard operator's permit is investigated by the police before the permit is granted or denied. Clear records of all cars received by yard operators must be filed with the police department and must be kept by the dismantlers for 60 days. Normal police patrols are made in the wrecking yard area. These measures are meant to insure that the wrecking yards will not become an easy disposal spot for stolen cars and other goods.

b. Community Attitudes

North Richmond residents feel that historically their community has been a dumping ground for noxious land uses. The wrecking yards are only one of many such uses that threaten the public health, safety and welfare.

Violations have been occurring continually since 1961 when the first of several concerted campaigns of inspection began. Attempts to enforce regulations of city

and county codes, fire codes and Bay Area Air Pollution Control District regulations have not attained desired results. There are a number of reasons for this.

First, some improvements which have been made in the wrecking yard area have been all but destroyed by constant heavy use. For example, McCosker Road has been paved for light use by its owner, but tow trucks dragging wrecked cars and the continual passage of larger trucks carrying six or eight tons of scrapped hulks have torn up the pavement. Fences, some of fairly good quality and acceptable appearance, have been installed at some yards, but wrecks and hulks falling against them and trucks and cranes blundering into them have knocked portions of them down.

Second, is their impermanence. The majority of yards along Gertrude Avenue are rented on a monthly basis from a single owner. The turnover in occupancy is high. This high turnover, combined with the situation of lessees instead of owners, means that little care is given to the appearance of the yards or to their conformance with city and county ordinances.

Third, some violations are not the fault of owners or operators. The area attracts a lot of illegal dumping, for dumping on McCosker Road in the middle of the night is free, whereas dumping at the dump costs money.

c. Economics of the Wrecking Yards

In June of 1970, a survey of the wrecking yard area in North Richmond found 51 wrecking yards on Gertrude Avenue, McCosker Road and McCosker Road West. Of these, 30 yards were located in the City of Richmond and 21 in the unincorporated area. All but 5 of the 51 yards were on property owned by John McCosker.

Most of the wrecking yards are leased on a monthly basis and it is difficult to assess their value. They do certainly serve a purpose within the Richmond area in their first-step work toward recycling the worthless wrecks any area produces. The auto wrecking business serves another important purpose in making available used parts at much lower prices than new ones.

Auto wrecking yards can be both large and small, specializing either in the sale of parts or of scrap metal hulks to steel shredders or manufacturers, Lloyd Stateler, publisher and advertising manager of, "The Parts Locator," magazine of the auto wrecking business in 11 western states, feels that physically small operations like those in North Richmond, are necessarily minimal profit operations, with the

major part of their income derived from the sale of scrap metal rather than more lucrative used parts.

The real money in the auto wrecking business comes from the sale of used parts. In order to deal successfully, however, a wrecker must have an inventory of late model cars. Nearly all late model cars are acquired from insurance salvage pools, wrecked car auctions at which yard operators bid against each other for damaged cars. Prices at these auctions are often \$300 or more. Buying from the salvage pool requires a fairly large amount of free capital. The small auto wreckers in North Richmond do not usually have funds available for such capital purchases, especially since cars bought at auction may not make a profit for the buyer until some time later. Most North Richmond yards are small, and whatever parts business they do is from walk-in customers.

A conflicting opinion about wrecking yard profits comes from the San Francisco Redevelopment Agency Hunters Point-Butchertown Office. From experience, working with 29 auto wreckers in Butchertown, it appears that many wreckers who seem poor and whose books show only small profits and even losses, are in fact making large net profits yearly. A wrecker with four employees, handling six cars per day, can gross approximately \$160,000 per year, if he works at it. Some operators gross less than this, but a rule of thumb for estimating profits is the calculation that net equals one-third of gross.

The chief market for the metal hulks which North Richmond wreckers sell is Schnitzer Steel in Oakland. Schnitzer, unlike most steel mills in the Bay Area, can use practically untouched wrecked cars in their shredder. Their operation will continue to offer a market at \$18-\$20 per ton for the product that the North Richmond wreckers sell. Schnitzer can handle 1,000-1,500 junked cars per day, but is now shredding only approximately 500-1,000 cars per day. Of this daily number, about 50-75 cars come from North Richmond.

The hauling of hulks from North Richmond is both laborious and inefficient. Few of the yards have large trucks, and none has a high-powered smasher-crusher to flatten wrecked cars before they are loaded onto trucks for Oakland. Operators can haul only three to four cars per trip. Although, preparation of cars for sale to Schnitzer Steel is minimal, for the shredder can separate contaminants from salable steel after the shredding operation is complete, seats, gas tanks and tires must still be removed. The wrecker will usually remove other parts from the car as well, which takes time and effort. The trip takes time and gas, and depreciates

the value of his truck. Unloading and weighing at Schnitzer Steel takes additional time, from one-half hour to two hours, and the trip back to North Richmond must be counted as an expense for the wrecker. Although the steel market is a reliable one, offering a fair price for the hulks, the wreckers' current inefficient mode of operation severely limits any profits made.

Preliminary investigation of more efficient transport from North Richmond to Schnitzer Steel by rail disclosed that the money per mile ratio, handling costs, and initial capital construction costs of a rail spur, render this potential solution far too expensive to consider.

Recommendations:

Although feeling in the community is mixed about the desirability of retaining the wrecking yards, there is concern that the yards give jobs to people who might otherwise be unemployable. People who work there are often North Richmond residents who work hard and take risks because the yards can be hazardous. The general consensus is that the yards should be upgraded and codes strictly enforced.

The Study recommends that the wrecking yards be moved from their present site to another nearby site in order to facilitate flood control work and recreational development planned for Wildcat Creek. Since they will need to be relocated, displacement loan money will become available through the Small Business Administration. These funds will enable the wreckers to set up a more sophisticated operation that will lend itself to ordinance enforcement and thus make it a more desirable industrial neighbor.

As the program has worked in Butchertown, the auto wreckers formed an association. Following the successful Butchertown example, the auto wreckers should form an association to guide the relocation effort. After relocation into their new individually owned facilities, the wreckers will be bound by the covenant of the association. If they do not follow its rules, they will be evicted from the auto wreckers industrial park. Their new facilities will upgrade their functions greatly. Because part of their facilities will be roofed, the wreckers will be able to handle a larger proportion of parts than they did before. Paving will enable the yards to function in wet weather as well as dry. The new facilities will be more inviting to customers.

5. Vector Control and Mosquito Abatement

Periodically, the residents of North Richmond have complained of invasions of rats in their community and of the mosquito problems created by proximity to extensive marshland and mud-flat areas. While there is little question that rodents,

vermin, and insects are more prevalent in areas traversed by natural watercourses and surrounded by marshland, there are ongoing programs to abate these nuisances.

a. Rodent Control

The County conducts a rodent control program which includes educational as well as control activities. The control program consists of using poisoned bait throughout the County in sewers and creek areas. In 1970, a concentrated effort was made along the creek area in North Richmond and, in cooperation with the Housing Authority, 16 permanent bait stations were placed.

This year, however, tenants in the Las Deltas housing development complained of rats in the units. In response to a request from the County Health Department, the State Department of Public Health, Bureau of Vector Control, conducted an investigation in the area between Chesley on the south, Wildcat Creek on the north, two blocks west of Central on the west, and the railroad tracks on the east. The study consisted of a house-to-house survey to obtain information through interviews and inspection of the premises on environmental conditions that might foster a rat problem. In addition, a trapping program was carried on in areas that showed indications of rat activity. These included the sanitary landfill site, Wildcat Creek, county housing units, private residences, and sewer manholes.

In analyzing rat signs observed, it was found that the greatest number of signs were old, and that in the fall of 1970, the rat population had been more prevalent. The occurrence of dead rats, burrow openings with cobwebbing, and lack of fresh droppings attested to the effectiveness of the county poisoning effort.

The amount of potential food available in the form of improper garbage storage provides the conditions for a possible resurgence of a rat population in the future, however. The nature of improper garbage storage in county housing units is different than private residences. The housing units have regular weekly collection; however, many cans were without lids and garbage, in a number of instances, was scattered around the base of the can. Rats are capable of jumping into open containers and feeding. In private residences the incidence of improper garbage was higher and there were larger volumes available for rat food - much of it piled on the ground and in open boxes, cans and barrels. There was ample evidence that a significant number of premises were without weekly refuse collection. In an instance,

where six rats were captured, the householder did not have refuse collection and there was a large accumulation of garbage and refuse in the backyard. Rats were living under refuse piles and feeding on fresh garbage added to the pile.

The lack of rat-proof structures in private residences (over half of homes had this defect) increases the opportunity for rats to gain access to the interior of the house, providing a greater potential for cases of rat bites and rat-borne diseases. In county housing units this hazard is much less likely.

Lack of rat captures and absence of recent rat signs along Wildcat Creek indicate that the creek is not a problem at the present time. The banks are clear of heavy berry tangles, other shrubs and accumulations of refuse that are the conditions necessary to become a rat source.

Although there was some evidence of rat activity at the refuse site, the distance of 1.2 air miles to the edge of residential North Richmond precludes the influence of the dump as an immediate source of rats. The normal home range of a Norway rat is within 150 to 200 feet. Neither did the sewer system in the surveyed area have an active rat infestation.

b. Mosquito Abatement

The Contra Costa Mosquito Abatement District provides a mosquito, fly and other flying insect pest prevention service, not only within the district but in adjacent areas where breeding insects may migrate into the district. However, efforts are directed at locating mosquito breeding sources and taking appropriate action to prevent immature forms in the water from developing into the winged biting pest stage. The district does not control adult mosquitoes except in extreme emergency.

The history of mosquito abatement in North Richmond goes back some 30 years when the Alameda County Abatement District dredged drainage channels through much of the area to minimize the hordes of day-biting mosquitoes migrating into Berkeley. The cost of the work was supported in part by the City of Richmond. The *Aedes squamiger* and *Aedes dorsalis* mosquitoes that breed in this saltmarsh have a very long flight range and their migration pattern currently takes them into the Richmond Golf Course, City of San Pablo, through Tara Hills, El Sobrante, and into the City of Pinole.

The western portion of Contra Costa County was not annexed into the district until late 1969 and tax monies did not become available until July 1, 1970. During the winter of 1970-71, work was done to reduce the tidepools where mosquito larvae breed. The district's objective is to provide sufficient drainage channels to allow tides to flood the marsh and drain quickly. Nonetheless, a certain amount of pesticide application is necessary even with appropriate drainage.

The Study recommends that the Mosquito Abatement District work closely with the Corps of Engineers to ensure that flood control design carefully considers insect problems that are more economical and practical to avoid than abate.

TRANSPORTATION AND CIRCULATION

There are four major transportation problems in the North Richmond area:

- ° Heavy volumes of through traffic on local streets
- ° Hazardous access into and out of the neighborhood
- ° Circuitous or difficult access to regional freeway network
- ° Minimal public transit facilities.

1. Heavy Volumes of Through Traffic on Local Streets

Through traffic consists primarily of employees enroute to or from work in nearby industries, plus truck traffic to these same industries. Industries comprise not only manufacturing plants and warehousing operations, but the Richmond Sanitary Service landfill site which attracts heavy flows of private cars, trucks and trailers hauling rubbish to the dump. A concentration of auto wrecking yards west and north of North Richmond have their only access via local streets, and a heavy flow of customers.

There are five access points to the North Richmond residential area:

- ° Filbert Street at junction of Castro and Seventh Streets
- ° Chesley Avenue at the railroad tracks
- ° Market Street at the railroad tracks
- ° Third Street at Wildcat Creek
- ° Central Street at Wildcat Creek.

Volumes and direction of traffic in the North Richmond area clearly reflect a typical commute-to-work pattern, although throughout the day a substantial flow of trucks uses the same routes. During the 7 a.m. to 9 a.m. peak period, by far the greatest volume of traffic enters from the east and north, and leaves from the south toward the Standard Oil refinery and the downtown and port areas of Richmond. In the 3 p.m. to 5 p.m. peak period, the flows are almost exactly reversed, although the volumes are approximately 30% greater.

Almost equal volumes utilize Market and Third Streets while Chesley accommodates a volume slightly over one-half of that on either of the above streets. This data was derived from manual license plate counts made in September 1967.

These heavy volumes of through traffic are seriously detrimental to residential life in the neighborhood. Physical congestion is created along the Filbert-Third Street corridor and along Market and Chesley Streets. Special problems exist because of the coincidence of peak hour traffic and the movement of children to and from school. Practically all school children in North Richmond have to cross one or more of the streets carrying heavy volumes of through-commuter traffic.

2. Safety of Neighborhood Access

All normal access routes to North Richmond have grade crossings at railroad tracks. Three of the routes involve cross-the main lines of both Southern Pacific and Santa Fe Railroads. A fourth route crosses a feeder track of Southern Pacific. Although these crossings are signalized and have gates on the main line crossings, there is a history of crossing accidents.

Aside from the safety factor, the crossings are a continuing source of inconvenience due to delays created by switching and other rail traffic. At times, emergency vehicles such as ambulances, fire engines and police cars cannot get through because of trains blocking the crossings.

3. Difficulty of Freeway Access

Access from North Richmond to the regional freeway network is relatively circuitous due to uncoordinated local street patterns. This is a considerable inconvenience to the local population since a large percentage of the labor force has to commute some distance to places of employment, county offices, and the county hospital in Martinez.

4. Minimal Public Transit Facilities

North Richmond is served by one A.C. Transit Route, Number 69, which runs from North Richmond to downtown Richmond. Service is limited to the hours of 6 a.m. to 11 p.m. During morning and evening peak periods there is service at 15 minute intervals. During other hours there is a 30 minute schedule.

RECOMMENDATIONS

1. Remove Through Traffic

Through traffic is proposed to be removed by the construction of two bypass routes. The North Richmond Bypass to handle north-south traffic will be constructed from Castro Street to Parr Boulevard, skirting the western edge of residential North Richmond. This route has been incorporated into the official City-County Thoroughfare System. The right-of-way is being protected by a county plan line ordinance. Plans for this bypass include an improved connection from Seventh Street at the entrance of Hensley Industrial Tract along Vernon Avenue to the new right-of-way. Funds for land acquisition and preliminary engineering have been included in the 1971-72 budget of the County Department of Public Works.

The Study recommends the North Richmond Bypass be constructed immediately to alleviate existing traffic problems and to serve as a feeder road for proposed residential and recreational uses in the area.

The second proposed bypass is designated as the Castro-Chesley Bypass and will handle east-west traffic. It is to extend present Castro Street northeast to Chesley Avenue, unless a more desirable alternative is devised. This route has not yet been accepted into the City-County Thoroughfare System but it is shown as a future arterial on the City of Richmond Select System of Streets, which has been approved by the City Council and the State Department of Public Works.

2. Extend Bypass to Existing Freeways

As part of the future regional traffic network it has been recommended by the legislative bodies of the Cities of Richmond and San Pablo and the County of Contra Costa to connect the North Richmond Bypass to Interstate 80 northward from Parr Boulevard to Hilltop Drive. From the south it is suggested to be extended through Hensley Industrial Tract to Garrard Boulevard where it will intersect with a State constructed connection to Hoffman Freeway. These extensions are to be constructed as part of the City-County Thoroughfare System.

The Bypass, developed to expressway standards in combination with Thirteenth Street as a parkway, has been recommended as an alternative to the proposed Northwest Freeway, Route 93, which the State Division of Highways will start working on this year to secure official route adoption. The North Richmond Bypass will be used by trucks as well as commuter traffic: it cannot, therefore, be a parkway as technically defined. However, it is clearly important that the road be properly landscaped and that the bridges that will span both Wildcat and San Pablo Creeks be designed to facilitate pedestrian movement along the creeks in conjunction with the trail system under consideration by the East Bay Regional Park District.

The most crucial unresolved problem is the connection between the bypass and the Iron Triangle, which involves the need for improved grade separations and the ultimate redirection of through traffic from residential streets in the northwestern portion of the Triangle. The Model Cities Program proposes a study of this problem in their Third Year Plan.

3. Construction of Grade Separations

It is proposed to provide-grade separated access to North Richmond in connection with the extension of the North Richmond Bypass. It has also been recommended that grade separations be constructed at Chesley and Market Streets where they cross the railroad main lines. An alternative which may prove more feasible is a grade separation from Sanford to Thirteenth Street as part of the Castro-Chesley connector.

4. Improve Public Transit

Despite the revamping of bus routes in conjunction with BART service, the only anticipated change in service to North Richmond will be that the 69 bus will go directly to the BART station. However, the Model Cities Program has as one of its objectives the development of new means of public transportation that will permit people who do not have cars to reach places of employment, medical and child care facilities, and other services with ease.

In addition to working with A.C. Transit to improve existing bus service, Model Cities has embarked on a study of expansion of public transportation through the use of some form of demand-activated system which might combine commuter subscription routes designed to service specific locations with special demand arrangements. Current investigations include a feeder system to BART combined with a service-oriented off-peak-hour system, and also include less ambitious forms of new transit service such as jitney, mini-bus, dial-a-bus, and owner-driver systems. It is hoped that provision of expanded services will provide an opportunity for local employment and entrepreneurship.

RECREATION, CONSERVATION AND EDUCATION

The recreation element of the North Richmond-San Pablo Bay Area Plan does far more than merely provide recreational facilities for a community that lacks them. To a large extent it makes possible all other plan elements.

Proposed open-space preserves provide a buffer between industry and residence, which can help to insure that the two uses can coexist with the least possible friction. By putting the community in a park-like setting, the chances for expanded and upgraded housing are greatly improved. By developing regional recreational facilities, the opportunity for local economic development and employment through owner-operation of concessions and ancillary services is increased. By utilizing the flood control project in a multi-purpose way, not only is the flooding problem resolved but funding potential greatly increased for neighborhood recreational facilities in an area that is not served by a local public recreation agency.

REGIONAL RECREATION

Since public access to and use of the Bay is a critical need in this area, the Study supports the development of the 325-acre West Contra Costa Dump site as a regional park, with emphasis on shoreline and Bay-associated activities. Included would be a natural beach area and a fishing pier extending into San Pablo Bay's prime fishing grounds as identified by the State Department of Fish and Game. Discussions have begun between the East Bay Regional Park District and the Richmond Sanitary Service.

An invaluable opportunity exists to develop riding, hiking and bicycling trails along Wildcat and San Pablo Creeks within the flood control right-of-way. This would facilitate the connection of the shoreline park to other regional parks in the East Bay hills through a continuous trail system that would be tied in to the Skyline National Trails System. Nowhere else in the northern portion of the East Bay is there the opportunity to make this type of connection from the hills to the Bay along a natural watercourse and be able to explore the total ecology of a creek from its freshwater headwaters to its saltwater termination in the Bay.

Adjacent to the sanitary landfill are some 600 acres of fertile marshland which, in association with nearby Bay mudflats, provide a constituent part of the Pacific Flyway bird migratory route. It is proposed that this marshland be preserved, not only as an irreplaceable and rapidly diminishing resource but as a valuable teaching tool (this is discussed later in "Outdoor environmental Education Center"). The juxtaposition of natural resource, urban industry and its effects on adja-

cent uses, and rural economy are rarely available to urban ecology students in such telling fashion. The development of such an educational resource offers the opportunity for youth from Verde School and schools throughout the area to relate to this natural resource and to each other. The North Richmond marshes are a particularly unique regional resource.

COMMUNITY RECREATION

A unique feature of the North Richmond-San Pablo Bay Plan is the proposed combination of creek-oriented recreation with flood protection. Facilities within the flood control right-of-way will offer recreational opportunities currently denied to North Richmond residents with limited means and access. It will also enable the sensitive design and control at the local level of needed flood protection measures.

Wildcat Creek will be the focus for major recreational development because of its proximity to the existing community and because of anticipated flood control work proposed along the creek. It is proposed to create two major activity nodes, one centered around Verde School and the other at the mouth of Wildcat Creek where it enters San Pablo Channel and the Bay.

The complex at Verde School would include the North Richmond Ballpark, scheduled for completion by 1975, the schoolgrounds, picnic areas, and nature study areas. With the influx of a sufficient number of users to the community, the development of an indoor gymnasium desired by local youth may become more feasible. The other activity center at the mouth of Wildcat would be totally water-oriented. It would include a swimming lagoon and bathhouses, a rafting basin, sections designed for bank fishing, a small-boat storage area, picnic grounds, and associated commercial facilities.

Other facilities such as tot lots, which would serve existing housing as well as planned new housing, an open-air amphitheatre, cafe and dance floor, and community gardens would be developed along the creek between major nodes. Small-scale parks and sitting areas would be developed where streets abut the creek, and footbridges would span Wildcat to connect facilities on both sides.

The Corps of Engineers is investigating the feasibility of creating a 2000-foot long, 50-foot wide, five-foot-deep fishing pond in the flood control channel extending from Third Street to the proposed North Richmond Bypass. Since both Wildcat and San Pablo Creeks are intermittent streams, they are dry during the summer months of the year. Therefore, a fishing pond must be designed in such a way that it can be controlled and supplied by a reliable water source. A discussion of potential sources follows:

1. East Bay Municipal Utility District

At present a small flow exists in San Pablo Creek. This flow is the washwater from an EBMUD domestic water treatment plant. It is of good quality and supports a fair amount of fish. However, at the termination of a reclamation study currently underway, even this small amount of water will be recycled and San Pablo will revert to a dry stream during the summer.

The District is the principal source of domestic water in the area. An unlimited quantity of water is available for purchase. The Corps estimates the maintenance of the fishing pond would require a 20,000-gallon flow per day at an approximate cost of \$4.00 per day. If it is desirable to maintain water in the upper reaches of Wildcat, it would be necessary to supply 50,000 gallons from Church Lane downstream at a cost of \$10.00 per day.

2. Ground Water

There appears to be adequate ground water in the area; in fact, the residential settlement of western Contra Costa was made possible by the widespread existence of wells. Most of these were capped by EBMUD when the District bought out all private water companies. Investigations by the County Health Department indicate that many of these wells are still in good working order and that water salinity is low. However, further investigation is needed to determine whether the area is underlain by a freshwater aquifer and whether problems might be caused by tapping this source.

3. Reclaimed Sewage Effluent

The San Pablo Sanitary District will complete its \$4.2 million secondary sewage treatment plant by March of 1972 and will be producing approximately seven million gallons per day of secondary effluent.

According to Regional Water Quality Control Board requirements, the District must provide at least 90% biological oxygen demand (BOD) removal, eliminate toxicity in the effluent, meet certain other standard wastewater parameters such as floatables, and disinfect to meet saltwater bathing requirements. Plant effluent will be satisfactory and safe for discharge into the waters of San Pablo Bay.

It is doubtful that economics could support the cost of installing tertiary treatment to assure a standard of water quality high enough for all recreational uses. However, fishing is consistent with the degree of treatment already under construction. Planning involving more limited uses would not rule out the possibility of further

upgrading of water quality at a future time. Additional investigation of the costs of pumping this water from the plant to the creek remains to be done.

CLIMATE

Climatic conditions have a definite effect on recreational patterns and should be considered in planning facilities.

1. Temperature

Even though Richmond experiences a low degree of mean temperature fluctuation, 16 degrees throughout the year, daily temperature extremes are quite erratic during the summer. It is not uncommon to find a temperature variation of 15 to 20 degrees within a two-to-three day span.

During the last ten years, the highest recorded temperature was 104° (June), the lowest 28° (January and February). The mean daily temperature, however, is 58.2°, although during summer months it averages 62°.

2. Precipitation

Mean annual rainfall for the past ten years is 22.38 inches. The highest monthly precipitation of 14.25 inches occurred in December, and the greatest daily rainfall of 3.15 inches also occurred in December. Summer months are almost rainless, with the months of May through October each averaging less than an inch of rain.

3. Sun

In spite of almost rainless months, however, cooling sea breezes, morning overcast, and relatively high humidity assure a mild summer season. Mean number of clear days is 144, partially cloudy days is 115, and cloudy days is 106.

4. Wind

Winds have been discussed in some detail under "Air Quality" However, winds are predominantly from the south and southwest during the summer, averaging 4-10 m.p.h. 66% of the time, and 10-20 m.p.h. 27% of the time.

In the winter they are less predictable but come more often from the north and northeast. Sixty-nine percent of the time winds are 4-10 m.p.h. and 20% of the time 10-20 m.p.h. Weather patterns in Richmond are similar to general weather experienced in all East Bay shoreline communities.

OUTDOOR ENVIRONMENTAL EDUCATION CENTER

San Pablo Bay and the study area shoreline are part of the larger San Francisco Bay-Delta complex, which is extremely rich in marine and bird wildlife. San Pablo Bay, at the turn of the century, was one of the primary shrimping grounds, oyster beds, sturgeon, flatfish, salmon and striped fisheries of San Francisco Bay. In addition, it was and still is the principal wintering area for migratory waterfowl, as well as, year-round habitat for myriad waterfowl and shorebirds living on its tidal flats and marshlands.

Within the project area, more than 600 acres of marsh and adjacent tideland provide a viable environment for an impressive variety of animal life. Even though actual wildlife counts were not conducted on the project site, the Audubon Christmas counts taken in nearby marshlands, and studies developed on other East Bay shoreline habitats, suggest a varied and impressive array of animal and bird life.

The concept of outdoor education, although it has been with us for awhile, has only recently assumed importance in an increasingly ecology-conscious world. It is beginning to be recognized that exposure to ecological precepts should occur at an early age and be an ongoing educational process.

Except for a few gifted teachers who have devised their own programs and often must resort to extracurricular field trips, local school systems do not incorporate environmental study into their existing purview. Nor are necessary physical resources available in a consistent and reliable manner.

In the Bay Area, most nature study takes place in a woodland environment within established parks. Little use is made of the marvelous resources of San Francisco Bay and, in fact, only 10 miles of 276-mile shoreline are open to public access. The rest is utilized by industry or under-utilized.

In Richmond less than one mile of a 22-mile shoreline is accessible to the public. Yet North Richmond has some of the most extensive and best-preserved marshlands and mudflats of any Bay community, a resource that is disappearing in urban areas. Nowhere in the East Bay is there an organized program for the study of marshland-mudflat ecology, and nowhere is there a better resource for this type of investigation than here on the shores of western Contra Costa County.

Preliminary analyses indicate that the quality and health of the marsh are good and wildlife species diversity is high. It is of considerable size, sufficient to play a vital role in adjacent ecosystems. In fact, large portions of marshland at the mouths of the two creeks that traverse the area are recommended for preservation by the San Francisco Bay Conservation and Development Commission (BCDC).

A valuable experience during one's school years is the environmental education school, a resident facility where students live for several days during the year in natural surroundings, and in which the course of study is the out-of-doors. It is even more valuable when the natural environment under survey is unique, irreplaceable, accessible to large numbers of people, and close to an urban environment for contrast and the easy assessment of relevance to daily life. It is impossible in this area to overlook the relationship between the marshland environment, the rural economic environment, and the urban industrial environment. Their juxtaposition provides a vivid illustration of resources in conflict and a laboratory for analyzing their reconciliation. In addition, such a facility could provide a much-needed educational focus for the existing community, including the possibility of re-orienting Verde School to a natural sciences curriculum.

The Contra Costa County Department of Education, BCDC, East Bay Regional Park District and all major citizen conservation groups consider the project area marshlands to be of significant value both as wildlife preserves and as an educational-interpretive resource close to East Bay population centers.

The Study strongly recommends the early acquisition and development of this unique resource.

HOUSING

The existing housing stock of North Richmond and the area's potential for generating and supporting new housing have been the focus of much concern and activity. As described in the section on "Physical Characteristics," the condition of 85% of the houses is substandard, with 65% in violation of building codes and 20% are in need of replacement. Eighteen percent of the housing stock is low-rent public housing, and only 35% of the houses are owner-occupied. The latter figure compares to 52% of all blacks in the City of Richmond and 69% home ownership in the county at large.

The Home and Neighborhood Improvement Center of the Richmond Model Cities Program (HNIC) has made a major effort to improve the quality of housing since its inception in January of 1970. Using Model Cities supplemental funds, 36 homes have been rehabilitated and the exteriors of 13 painted. Another important effort has been the street right-of-way improvement project. Approximately 73,500 feet of sidewalks, driveways, curbs and gutters have been poured in the city and county portions of North Richmond. Less than 30,000 linear feet remain to be completed this year.

The Model Cities Program has also promoted new housing in North Richmond. HNIC has provided extensive technical assistance to North Richmond Neighborhood House in their sponsorship of subsidized new housing. Approximately 20 houses are being processed through FHA under the 235 (j) Program. This includes conventional construction and factory-built modular housing. Model Cities is also planning to develop a demonstration block in central North Richmond. Land will be assembled and at least 12 units constructed next year. These will be subsidized using FHA Section 235 (1) mortgages.

This Study proposes the development of 110 acres of new housing between Wildcat and San Pablo Creeks, directly north of the existing community. In order to test the hypothesis that with adequate flood control measures and the alleviation of other environmental problems this area would become desirable for expanded and upgraded housing, a housing market analysis was undertaken. Funded jointly by the Study, the Model Cities Program and the Richmond Redevelopment Agency, the purpose of the analysis is to determine the market for various types of housing packages that could be developed in the study area.

The Study has as its objectives:

1. To determine the effective demand for various types of housing packages that could be marketed within the study area under assumptions relating to future environmental, economic and socio-political changes.
2. To develop working definitions of "housing packages." These packages will be sufficiently well defined in terms of densities, unit types, sales and rent ranges to form the basis for serious negotiation with developers, financing organizations and local agencies responsible for utilities, education and amenities.
3. To estimate the probable market absorption rate relating to the elements of each housing package and demographic and employment trends in the East Bay.
4. To estimate the cost of producing feasible alternative housing packages.
5. To review alternative strategies for the development and marketing of the proposed packages, including the use of federal mortgage subsidy programs where housing needs cannot be satisfied within the constraints of the private market.

The housing market analysis will rely upon extensive surveying of potential buyers and renters of housing who might locate in the North Richmond area, since no usable market data is currently available. The consultant, David Bradwell and Associates, will review census data, existing studies and other local data to initiate the survey design. BATSC origin and destination data, University of California housing surveys, and county employment data will be utilized to determine the probable market area and produce an initial survey distribution schedule.

Surveying will include a 1,000 response short-form mail survey and a 500 response detailed survey utilizing individual interviews. The surveying will be done in two stages to permit adjustments to the survey area and survey technique dictated by initial survey responses. Surveying will include residents of the Richmond area and employees of major East Bay employers.

Based upon survey data, the consultant will work with staff to develop a series of housing packages that could be developed in the study area given varying physical and social conditions. The consultant will then project probable rates of development of the housing packages and make recommendations on strategies for development.

It was anticipated that the housing market analysis would be completed in time for submittal with this report. The analysis has not been completed, however. As soon as it is, it will be submitted to serve as an appendix to this report. The analysis is expected to have a major impact on the growth of the North Richmond area by documenting its potential for new housing.

IMPLEMENTATION

Annexation of North Richmond to the City of Richmond would provide a single primary jurisdiction for the area.

The County can assume responsibility for the ongoing coordination of the North Richmond Plan through the County Planning Department. The Planning Department traditionally develops local area plans for unincorporated sections of the County and guides their implementation. Close coordination and cooperation with the City of Richmond is a necessity since a portion of the study area is within City boundaries.

Establishment of joint exercise of powers agreement between or among the pertinent public jurisdictions to implement the plan is an alternative. Although only public jurisdictions can be a part of such an agreement, community organizations may be able to participate in an ex-officio capacity.

The agreement must state the purpose of the agreement or the power to be exercised. It must provide for the method by which the purpose will be accomplished or the manner in which the power will be exercised. Provision must be made for contributions to be made by each participating agency. Provisions for strict accountability of all funds and reporting of all receipts and disbursements must be included.

Continuation of the Joint Agency Committee on the same basis under which it has been functioning is a further alternative. This Committee could possibly execute specific Joint Exercise of Powers Agreements between certain agencies to execute specific program elements, or to simply work with agencies on a voluntary basis as needed. This Committee has accepted this alternative with the County Planning Department continuing to coordinate necessary work with call and chair meetings, Model Cities being responsible for any required staff work during the next year.

Taxing Jurisdictions

Taxes largely form the basis for determining whether and how a proposed plan can be effectuated. In a low-income area like North Richmond it is not easy to form special assessment districts to deal with single-purpose functions. It is helpful, therefore, to look at the existing situation as a guide to future concerns that will be generated through plan implementation.

There are within the study area over 30 different taxes levied by at least 17 separate governmental organizations. The boundaries of many of the taxing entities are different, so that taxes for one block may vary from the adjacent block. It is

difficult to classify these jurisdictions in a way that makes it readily possible to analyze how they would relate to a development plan.

There are two major general-purpose governments with power to carry out a fairly large number of functions in the area -- the City of Richmond and Contra Costa County. The County provides certain functions for both the incorporated and unincorporated portions. These include, in particular, health and the court system.

Depending on geographic jurisdiction, either the City or County provides the following: police, street lighting, street paving, street cleaning, storm drainage and libraries. The City provides parks and community facilities buildings, as well as recreation services, but it is not County practice to provide or develop local recreational facilities. Library service varies in availability from City to County area: neither are providing full branch facilities in North Richmond.

Fire protection in the City portion is provided by the City, whereas in the County it is provided by the San Pablo Fire District. The biggest difference between City and County services in these categories, however, is that many County services, such as street lighting, street cleaning, and storm drainage, require special districts or special taxes. It is not clear to what extent this produces problems in relation to staff cost and efficiency: certainly it requires special efforts in coordination.

Education services are provided by the Richmond Unified School District, the Contra Costa Junior College District, and the County Board of Education. These districts serve a larger area than the one under consideration. Some jurisdictions of taxing agencies are far larger than the area under study, particularly those relating to transportation, air pollution, and regional parks.

By category it appears that the County portion of North Richmond receives approximately the same basic services as the City portion. Limited police protection, and parks and recreational activities are particular concerns expressed by residents.

A major interest of this Study is water-oriented recreation related to flood control. There appear to be several agencies which are legally able to promote, plan and finance water-related projects with multiple-purpose uses. These are the Contra Costa County Water Agency, Contra Costa County Flood Control and Water Conservation District and, to a more limited extent, both the East Bay Municipal District and the East Bay Regional Park District.

While all these districts have historically been concerned with broader aspects, they do provide a possible vehicle for developing and administering portions of the Plan.

The development of new housing in the area will require substantial outlay and is likely to be most satisfactory if the scale of development is large enough to insure the full scale of integrated services such as schools, parks, shopping, protective services, adequate utilities and roads.

There are several approaches which might make such development more viable. For instance, the New Communities concept, especially New Towns In Town" where the new development could be combined with substantial coordinated improvement in the existing built-up area.

The use of the State Redevelopment Act, which would permit tax increment bonds to be used as a source of financing development appears promising. Action by the newly organized Community Development Corporation would permit the widespread use of SBA and FHA loans and subsidies available to non-profit community-based Minority Development Corporations. Finally, the area is within the area designated as a Special Impact Area by the Economic Development Administration (EDA) and, therefore, is eligible for a variety of grants and loans through EDA.

It is probable that a combination of all these forms of development assistance will be needed if development is to be of the quality desired and within a reasonable time frame.

OUTLINE OF PROGRAM FOR
PLAN IMPLEMENTATION

<u>ITEM OF CONCERN</u>	<u>ACTIVITY</u>	<u>AGENCIES</u>
1. Plan Adoption	Public Hearings	Richmond Planning Commission and Council County Planning Commission and Board of Supervisors BCDC
2. ABAG Endorsement	Submittal to ABAG	County Planning Department
3. Zoning Changes Implement Adopted Plan	a. Public Hearings	Richmond Planning Commission and Council County Planning Commission and Board of Supervisors
	b. Develop New Zoning Approaches	
4. Flood Control	a. Land Acquisition	County Flood Control District
	b. Community Design Input	Richmond Model Cities, Richmond Parks and Recreation
	c. Federal Funding of Project	All Pertinent Jurisdictions
	d. Assurance of Resident Employment and Affirmative Action	Richmond Model Cities, City of Richmond
	e. Development of Recreation Component	EBRPD, Richmond Parks and Recreation
	f. Range Restoration and Erosion Control In Upper Watershed	Corps of Engineers, East Bay Regional Park District County Flood Control
	g. Form Flood Control Zone on San Pablo Creek	County Flood Control
5. Storm Drains	a. Funding	HUD, Contra Costa County, City of Richmond
	b. Design and Construction of System	County Flood Control, Richmond Public Works
	c. Assurance of Resident Employment and Affirmative Action	Richmond Model Cities, City of Richmond

<u>ITEM OF CONCERN</u>	<u>ACTIVITY</u>	<u>AGENCIES</u>
6. North Richmond Bypass	a. Funding for Land Acquisition and Construction	Contra Costa County, City of Richmond
	b. Design and Construction	County and Richmond Public Works, County Flood Control
7. Air Pollution	a. Assist Industries and Public Agencies to Improve Standards and Operational Procedures For Air Pollution Control, Including Obtaining Federal Funding to Provide Corrective Measures	Richmond Model Cities, State Air Resources Board, Bay Area Air Pollution Control District
	b. Assist State Public Health Community Survey in Odor Identification	Richmond Model Cities, State Public Health Department, County Health Department
8. Water Quality	a. Request Water Quality Standards and Enforcement That Allow Body Contact Water Sports	County Health Department, State Water Resources Control Board, California Regional Water Quality Control Board - San Francisco Bay Region
	b. Vigilance Concerning Pollution of Refuse Abatement in Creeks	County Health Department, Regional Water Quality Control Board
9. Solid Wastes Disposal	a. Request Federal Funding for Study of Potential New Industries Using Recycled Waste Products as Raw Materials	Richmond Model Cities, Richmond Sanitary Service, Community Economic Development Corporation
	b. Request Demonstration Grant for Investigation of Employment Opportunities In Existing Solid Wastes Management Field	Richmond Model Cities, Department of Labor, Richmond Sanitary Service, Bureau of Solid Wastes Management, Concentrated Employment Program
	c. Coordinate with Richmond Sanitary Service To Assure Development of Appropriate Recreational Facilities on Landfill Site	East Bay Regional Park District, Joint Agency Committee, Richmond Parks and Recreation, Richmond Sanitary Service
10. Auto Wrecking	a. Relocate Yards and Upgrade Operations	Richmond Redevelopment Agency, Richmond Planning Department, Richmond Model Cities, County Planning Department, CEDC
	b. Investigate Increased Economic Development Opportunities	Richmond Model Cities, CEDC

<u>ITEM OF CONCERN</u>	<u>ACTIVITY</u>	<u>AGENCIES</u>
11. Rodent Control	Request Federal Funding for Improved Vector Control	County Health Department, Richmond Model Cities
12. Mosquito Control	Develop Close Coordination of Flood Control Work	Contra Costa Mosquito Abatement Control District Corps of Engineers, County Flood Control
13. Removal of Community Through Traffic	a. Encourage Early Construction of North Richmond Bypass	County and Richmond Public Works
	b. Include Castro-Chesley Bypass in City-County Thoroughfare System	County and Richmond Public Works
14. Extension of North Richmond Bypass to Freeway System	Resolve Routing of Northwest Freeway	Richmond Model Cities, Richmond, San Pablo and County Planning Departments, City and County Public Works Departments, State Division of Highways
15. Grade Separations at Railroad Main Line Crossings	Include in City Capital Improvements Program	Richmond Public Works
16. Public Transit Improvement	Study Potential for Improved Bus Service and Other Forms of Public Transportation	Richmond Model Cities, A-C Transit
17. Housing	a. Guide Housing Market Analysis to Conclusion	Model Cities, Home-Neighborhood Improvement Center, County Planning, Richmond Redevelopment Agency, Joint Agency Committee, City and County Housing Authorities, CEDC
	b. Investigate Potential of Title VII New Town Legislation and Funding and State Community Redevelopment and Flood Relief Redevelopment Acts	Same Agencies

<u>ITEM OF CONCERN</u>	<u>ACTIVITY</u>	<u>AGENCIES</u>
18. Outdoor Environmental Education Center	a. Form Citizens' Advisory Group	Richmond Model Cities, County Department of Education, Richmond Unified School District, Richmond Parks and Recreation, BCDC, HUSCICON
	b. Request Federal Funding for Study Grant	Same Agencies
	c. Investigate Economic Development and Employment Opportunities	Richmond Model Cities, CEP, East Bay Regional Park District, CEDC
19. Regional Recreation	a. Coordinate with Richmond Sanitary Service to Create Development Plan For Sanitary Landfill Site	EBRPD, Richmond Parks and Recreation, City and County Planning Departments, State Parks and Fish and Game, Richmond Sanitary Service
	b. Plan and Design Streambelt Trail System	EBRPD, Corps of Engineers, Richmond and San Pablo Planning, Richmond and San Pablo Parks And Recreation
	c. Land Acquisition and Development	EBRPD, Richmond and San Pablo Parks and Richmond and San Pablo Parks and Recreation. Richmond Model Cities
20. Community Recreation	a. Design Local Recreational Facilities In Conjunction with Flood Control	Richmond Parks and Recreation, Corps of Engineers, Richmond Model Cities
	b. Land Acquisition and Development	Richmond Parks & Recreation, Richmond Model Cities
	c. Explore Questions of Operation and Maintenance	Richmond and San Pablo Parks and Recreation, Richmond Unified School District
21. Year-Round Water in Creeks	a. Investigate Potential Sources of Additional Water	Corps of Engineers, San Pablo Sanitary District, East Bay Municipal Utility District, County Health Department
	b. Investigate Federal Assistance in Waste-Water Management and Stream Flow Augmentation	Richmond Model Cities, HUD, San Pablo Sanitary District, Corps of Engineers

<u>ITEM OF CONCERN</u>	<u>ACTIVITY</u>	<u>AGENCIES</u>
22. Existing Industry Stabilization and Modernization	Investigate Use of Vacant Plants	Richmond Model Cities, CEDC, Richmond Planning Department, Richmond Chamber of Commerce, Richmond Council of Industries, Industrial Development Commission
23. Encouragement of New Industrial Development	a. Explore Standards of Compatibility Of Industry with Residential and Other Shoreline Uses b. Investigate New Industry Potential With Particular Reference to Labor-Intensive Employment c. Coordinate with Other Industrial Development Studies in Richmond	Richmond and County Planning Departments Richmond Model Cities, CEDC Richmond Planning Department, CEDC, Richmond Model Cities, IDC, Mayor's Waterfront Development Committee
24. Encouragement of New Commercial Enterprises	Explore Possibilities Within Existing Community, in Relation to Hilltop Center, in Relation to Proposed Recreational Development, and in Relation to New Town Development	Richmond Planning Department, Model Cities, CEDC, IDC, Richmond Redevelopment Agency, East Bay Regional Park District

JOINT AGENCY COMMITTEE FOR THE
DEVELOPMENT OF THE NORTH RICHMOND-
SAN PABLO BAY AREA

MEMBERS

Supervisor James P. Kenny, Chairman	Contra Costa County
Mayor Nathaniel Bates	City of Richmond
Stanley H. Hall	
William H. Mitchell	City of San Pablo
E. Jack Schoop	San Francisco Bay Conservation and Development Commission
Hulet C. Hornbeck	East Bay Regional Park District
William O. Mootz	Contra Costa County Flood Control and Water Conservation District
Jesse Hollomon	Richmond Model Neighborhood Citizens' Board
Ivy Lewis	North Richmond Neighborhood House
Fred Casanares	San Pablo-Parchester Community Organization
Caesar Aquilino	Flood Control Zone No. 7

EX-OFFICIO MEMBERS

Frank C. Boerger	Contra Costa County
Congressman Jerome Waldie	U. S. House of Representatives

TECHNICAL ADVISORY COMMITTEE

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John Brearden	
Daniel Murphy	State Water Quality Control Board
E. Jack Schoop	SF Bay Conservation and Development Commission
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Dr. Glen W. Kent	Contra Costa County Health Department
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Ernest Henderson	Richmond City Planning Department
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Edward Anderson	
Barbara Vincent	HUSCICON
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Jessie Smallwood	North Richmond Neighborhood House

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A special note of thanks is due Bernice Carroll, secretary to Supervisor Kenny, without whose invaluable assistance we might not have made any of our deadlines or maintained the high level of communication and feedback required by the involvement of so many agencies and organizations.

U.C. BERKELEY LIBRARIES



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**North Richmond
San Pablo Bay Study**

DESCRIPTION

The focus of the North Richmond-San Pablo Bay Area Study is approximately 1,800 acres lying west of the City of San Pablo on the shores of San Pablo Bay. The study area is defined by the Southern Pacific and Santa Fe Railroad tracks on the east, by the Bay on the west, by Hensley Industrial Tract in the City of Richmond on the south, and by Maas Avenue on the north.

The area comprises the common floodplain of Wildcat and San Pablo Creeks which traverse the site running west into the Bay. More than half is salt-water marsh and tidal mudflat, a flat plain broken only by riparian vegetation along the creeks. The eastern half is roughly divided into residential uses in the southern portion and light industry and agriculture in the north. The built-up community of North Richmond contains 4,400 people on 120 acres of land, 12% of which is vacant. It lies one-third within the City of Richmond and two-thirds within the County of Contra Costa. Surrounded by industrial development, it is physically isolated from both Richmond and San Pablo.

Major industries in the area include Standard Oil Company, Allied Chemical Corporation, Chevron Chemical Company, and Richmond Sanitary Service. Most of the other industries are small-scale. In addition there are some warehouses, a large number of auto wrecking yards, and a substantial nursery industry.

PROBLEMS

At one time the area was used primarily for truck farming, grazing and hog raising. Even today North Richmond retains a rural quality that offers a pleasant contrast to nearby urban areas. However, North Richmond is a poor community, too small to support the facilities necessary to improve the quality of life in the area. Commercial support facilities are minimal and, at best, marginal. Other than the Shields Neighborhood Facility constructed by the City within its jurisdiction, there are no cultural or recreational facilities for the residents.

MEMBERS:

Supervisor Jan

Mayor Nathan
Stanley H. Hal

William H. Mit

E. Jack Schoop

Hulet C. Hornb

Wm. O. Mootz

Jesse Hollomor

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Fred Casanare

Caesar Aquilin

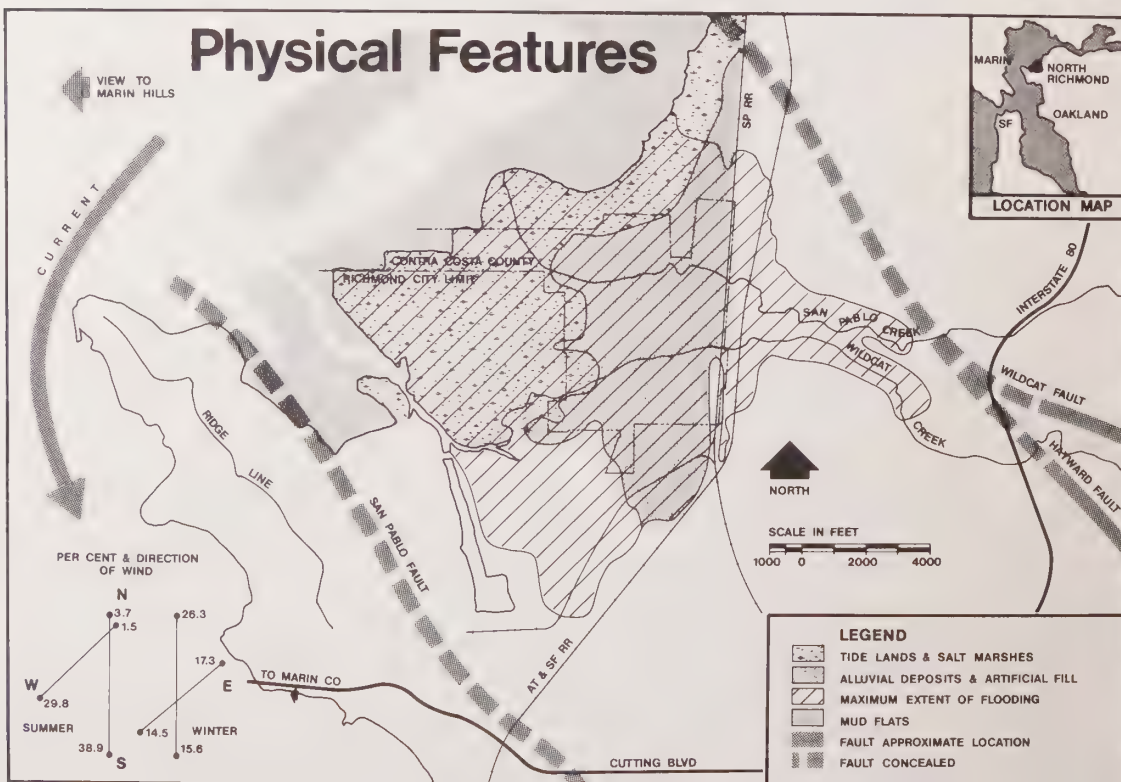
EX-OFFICIO

Frank C. Boerg
Congressman J

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Physical Features



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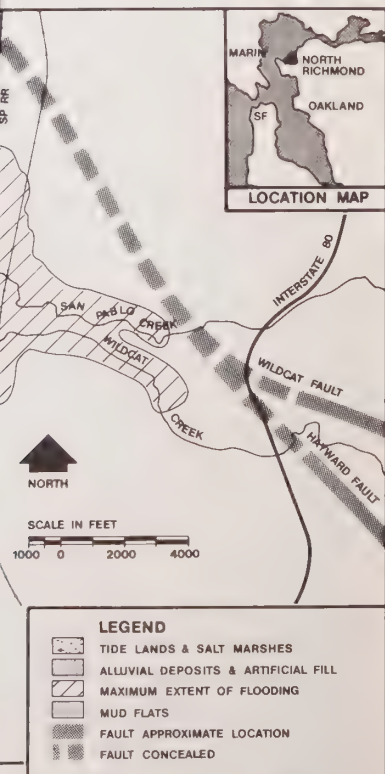
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THIS REPORT was prepared by the Contra Costa County Planning Department under the direction of Anthony A. Dehaesus, Director of Planning.

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In addition to high unemployment and welfare rates, low education and income levels, standard housing and low mobility potential, North Richmond suffers from a number of environmental problems. The major one is flooding.

Flooding in the North Richmond area is a three-pronged problem. Wildcat and San Pablo Creeks have inadequate capacities to contain runoff from storms that occur nearly every year. There is almost complete absence of storm drains in this virtually flat area. The westerly portion of the study area is inundated during periods of high tide.

Runoff from winter storms, combined with back-water during high tides, causes the creeks to overflow their banks and water to flow into North Richmond, causing flooding or ponding along most of the streets. Since there is no storm drain system to help carry off this excess water, flooding results in overloaded sanitary sewer facilities.

More than most communities, North Richmond suffers from a marked amount of air pollution, particularly as relates to odor. This has to do with proximity to heavy industrial development with high pollution potential, as well as to wind patterns that exacerbate the problem.

One of the reasons for the many environmental problems in North Richmond is poor circulation patterns. These patterns bring heavy volumes of industrial traffic onto and through local streets. Four of the five access points to the North Richmond residential area require crossing railroad tracks. Waiting trains often prevent access thereby increasing the sense of physical isolation.

BACKGROUND OF THE STUDY

As far back as 1960, the U.S. Army Corps of Engineers was authorized by Congress to survey the flood control situation in North Richmond. A preliminary study indicated that, due to low property values in the area, a favorable cost-benefit ratio appeared unlikely. However, because a Model Cities Program in Richmond was a real possibility in 1967, the Corps deferred their final report.

The Model Cities plan prepared in 1968 called for storm drains throughout the Model Neighborhood Area, and the agency applied to the Department of Housing and Urban Development for a Water and Sewer Grant. HUD's Metropolitan Development Office indicated that, by Executive Order, they could not finance public works in flood-prone areas unless they were assured that flooding would be corrected.

Model Cities was asked to prepare projected land use and development data that the Corps could use.

As this work proceeded, it became apparent that a long-range local area plan for North Richmond was needed to allow the Corps to do a major re-study of original flood control premises and that there were prime opportunities for environmental protection and water-oriented recreation with local and regional benefits.

In February of 1970, the County Board of Supervisors by formal resolution, established the Joint Agency for the Development of the North Richmond-San Pablo Bay Area and applied to HUD for a planning grant to study and make recommendations for the rehabilitation and growth of the North Richmond community. Funds were granted by HUD in July and the Joint Agency Committee, which consists of representatives from public agencies and community-based organizations with jurisdiction or interest in the area, guided the study.

OBJECTIVES

The study was charged with four principal objectives: 1) to expedite the early construction of a storm drain and flood control system, 2) to use the flood control project to enhance the existing residential community and provide physical incentive for expanded housing opportunities, 3) to provide for the recreational needs of the community and the region in conjunction with flood control and increased access to the Bay, 4) to explore proposals for the area in terms of local economic development.

RECOMMENDATIONS

To assist the Corps in its flood control survey, projections of future growth were needed which hinged upon certain key land use decisions. In some areas, final decisions cannot be made without further study, but reasonably definitive recommendations were needed for Corps calculations. Some decisions will ultimately rest on the kind and level of flood protection to be provided; however, the extent of probable future residential development, the character and degree of recreational development, and provisions of suitable buffers or other measures to achieve compatibility between housing and industry are among the major elements in the proposed plan for North Richmond.

EXISTING LAND USE

Little change in existing uses is proposed. Land now in residential, industrial or commercial greenhouse use is recommended to continue in these uses. Substantial upgrading of existing housing and commercial facilities, as well as the provision of recreational and community facilities, is anticipated.



Existing Land

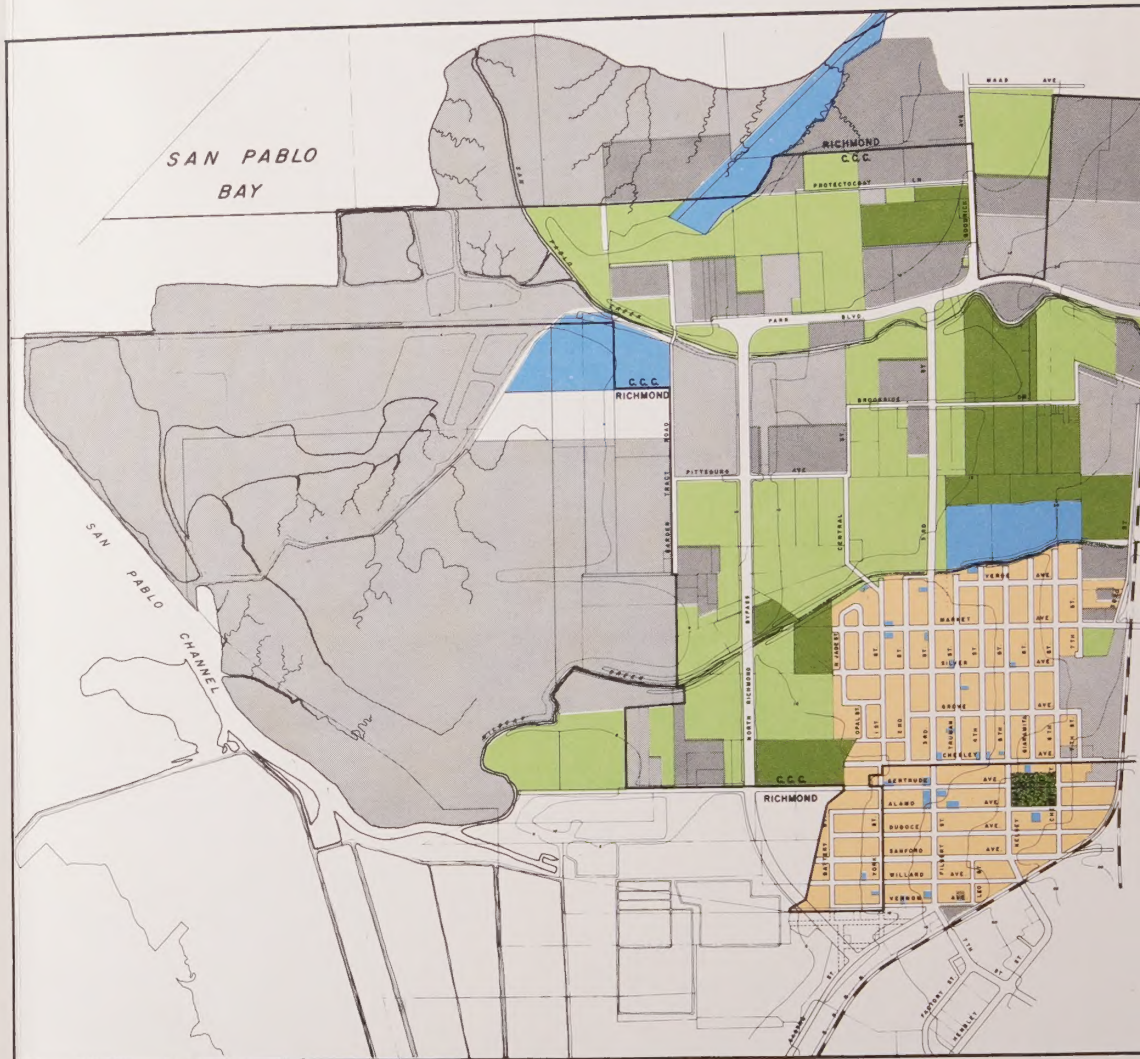
and, it became apparent that the plan for North Richmond would require the Corps to do a major re-evaluation of flood control premises and that there would be opportunities for environmental improvements oriented recreation with local

the County Board of Supervisors, established the Joint Flood Control Commission of the North Richmond-Redwood City and applied to HUD for a study and make recommendations on the development and growth of the North Richmond area. Funds were granted by HUD in 1968 to the Flood Control Agency Committee, which consists of representatives from public agencies and private organizations with jurisdiction or interest in the study.

The study was charged with four principal objectives: 1) to expedite the early construction of a flood control system, 2) to use the study as a project to enhance the existing flood control system and provide physical incentive for development opportunities, 3) to provide for the needs of the community and for coordination with flood control and other agencies, 4) to explore proposals for development of local economic development.

CONCLUSIONS
The study in its flood control survey, identified areas where growth were needed which would require land use decisions. In some cases, land use decisions cannot be made without further study and more definitive recommendations and engineering calculations. Some decisions can be made on the kind and level of flood control measures provided; however, the extent of development, the character of recreational development, and the location of buffers or other measures to separate housing and industry from flood control elements in the proposed plan

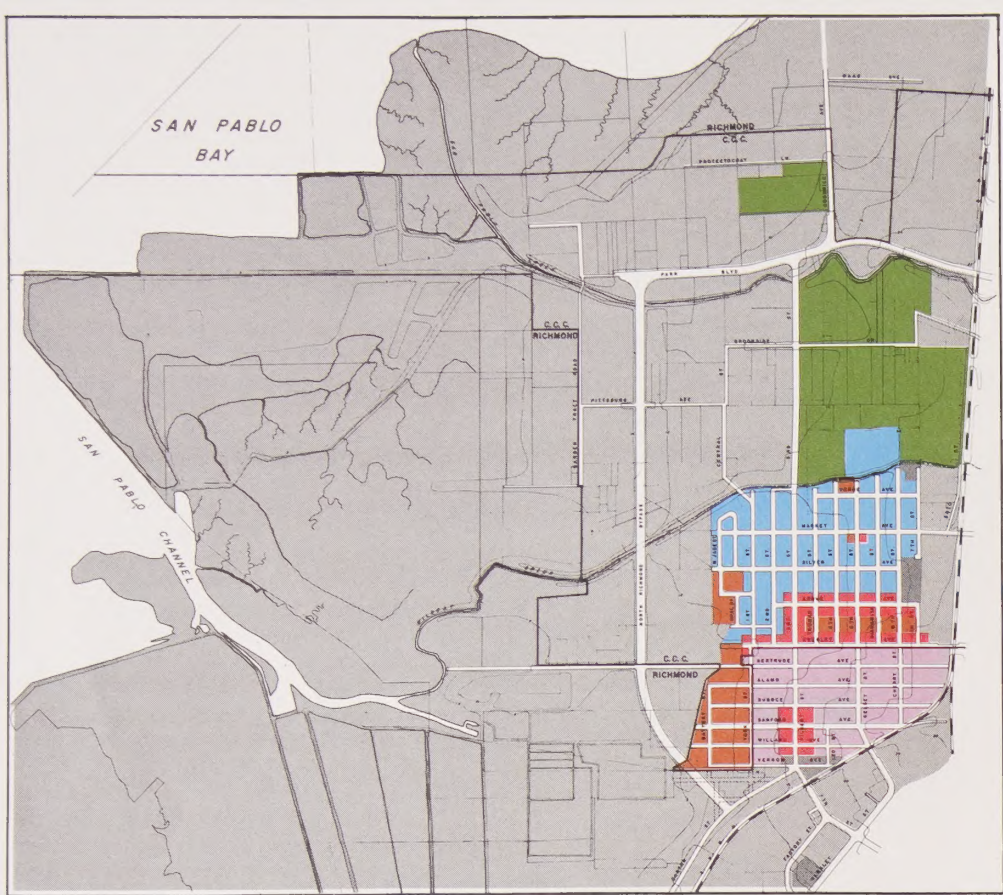
RECOMMENDATIONS
The existing uses is proposed. Land use changes in industrial or commercial green-landed to continue in these uses. The location of existing housing and commercial as well as the provision of recreational facilities, is anticipated.



Existing Land Use

LEGEND

- Vacant
- Residential
- Institutional
- Nurseries
- Light Industrial
- Heavy Industrial
- Park



Current Zoning

LEGEND

- Planned Unit District
- Two Family Residential District
- Multiple Family Residential District
- Retail Business District
- Heavy Agricultural District
- Light Industrial
- Heavy Industrial

HOUSING

Although vacant land within the existing community will provide for some housing expansion, it is recommended that undeveloped land between the creeks, except for land now occupied by nurseries and industry, be used for housing. There are a number of reasons for this recommendation:

- (a) Residents are anxious that their community become larger and more attractive. Their desire is based on the feeling that while North Richmond is a place where they would like to remain, there is inadequate variety and choice within the neighborhood.
- (b) Expansion of the community is critical to its viability and capacity to upgrade itself; as it presently exists, North Richmond is too small, too poor, and too isolated. By expanding residential uses between the creeks, the size of the community can be roughly doubled.

A neighborhood of low and moderate-income families must be oriented to urban services levels because of inability to travel long distances for services or to maintain them within the community. Thus, the lower the income of the residents, the larger a population base is required. The question of viability in this case relates not only to size but to pressures on the community and its ability to become more heterogeneous.
- (c) The revitalization and continuing viability of already developed but often under-utilized areas must be encouraged. Development of Hilltop Shopping Center and adjacent land for residence fills in a gap and tends to redirect future growth in a southwesterly direction. Infilling of previously passed over urban land in the North Richmond area provides greater impetus for the renewal of older parts of San Pablo and Richmond. Improved residential potential in North Richmond affects the northern part of the Iron Triangle, strengthens the possibility of a renewal downtown, and helps protect the investment in a potential value to Richmond of the BART station and many other existing or planned facilities west of 23rd Street.
- (d) Soil conditions in this area, while not suitable for intensive development, have adequate capacity to support light foundation loads such as low density residential or light industrial use.

INDUSTRY

There is a substantial amount of existing industry along the Southern Pacific line in the built-up area of North Richmond and north of Wildcat Creek. There is also a fair amount of industry along the spur track north of San Pablo Creek. This land is recommended to remain in light industrial and heavy commercial use. It is not fully developed and improvement of the land by eliminating flooding and by construction of the North Richmond Bypass to alleviate access problems should provide an important opportunity for industrial expansion.

A major effort should be made to attract labor-intensive industry appropriate to present and potential skills of North Richmond residents to help solve local unemployment problems. It should also be noted that some of the industrial plants in the area have recently been vacated. These may provide a resource for community entrepreneurship.

REGIONAL RECREATION AND CONSERVATION

Previous studies have already established the basic framework for recommendations in this area. The Richmond Sanitary Service has indicated that the best use for its site once filled is as a major shoreline oriented park, particularly in light of the critical need for public access to the Bay in Western Contra Costa County. The Bay Plan designates certain marshlands at the mouths of both Wildcat and San Pablo Creeks for preservation. The East Bay Regional Park District is interested in development of riding, hiking and bicycling trails along both creeks within the flood control right-of-way. This would facilitate the connection of the shoreline park to other regional parks in the East Bay hills through a continuous trail system tied in to the Skyline National Trails System.

Adjacent to the sanitary landfill site are 600 acres of fertile marshland which in association with nearby mudflats, form a constituent part of the Pacific Flyway bird migratory route. The marshes currently shelter five rare and endangered bird species.

Soils, geologic and seismic studies indicate that this area consists of geologically unstable materials underlain by Bay mud with no visible sign of bedrock. Lack of bedrock makes the area particularly prone to seismic effects. On the other hand, marshlands and mudflats which are relatively undesirable to build on have a high social value if left natural, as a buffer for industry, as a way to provide a protected greenbelt for the residential area, and as a conservation resource. It is, therefore, recommended that this land be preserved, not only as an irreplaceable resource but as a valuable teaching tool for environmental education. This would provide a grand opportunity for students to observe the relationship between natural marshland environment, rural economic environment, and urban industrial environment. The North Richmond marshes are a particularly unique regional resource.

COMMUNITY RECREATION

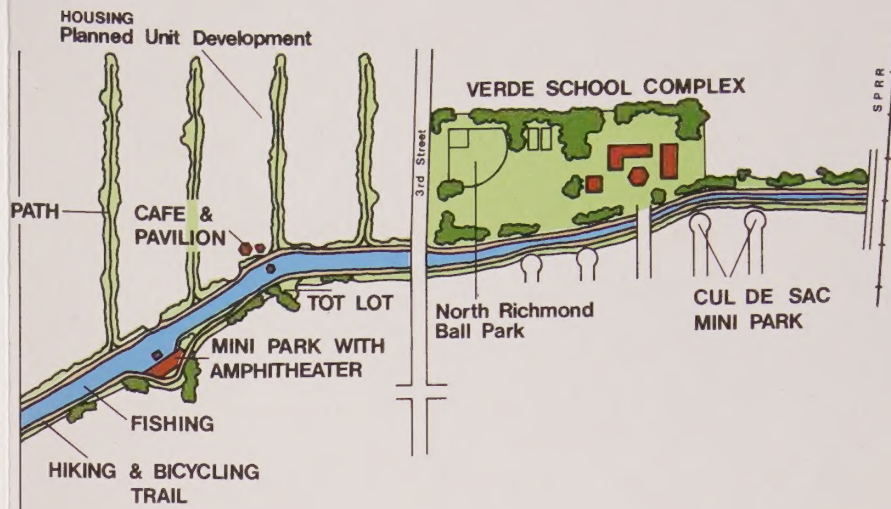
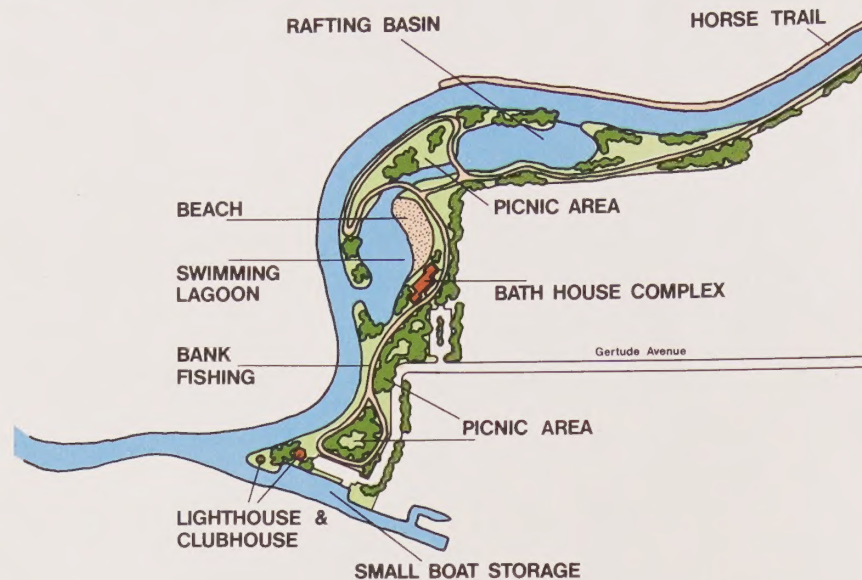
Another feature of the plan is the proposed combination of creek-oriented recreation with flood protection. Facilities within the flood control right-of-way will offer recreational opportunities currently denied to North Richmond residents with limited means and access. It will also enable the sensitive design and control at the local level of needed flood protection measures.

Wildcat Creek will be the focus for major recreational development because of its proximity to the existing community and because of anticipated flood control work along the creek. It is proposed to create two major activity nodes; one centered around Verde School, and the other at the mouth of Wildcat Creek where it enters San Pablo Channel and the Bay. The complex at Verde School would include the North Richmond ballpark, the school grounds, picnic areas, and nature study areas. The other activity center at the mouth of Wildcat would be totally water-oriented. It would include a swimming lagoon and bathhouses, a rafting basin, a section designed for bank fishing, a small-boat storage area, picnic grounds, and associated commercial facilities.

CLASSIFICATION*

	USE		ZONING	
	Acres	%	Acres	%
Agriculture:				
General	—	—	78	4.4
Greenhouses	90	5.1	—	—
Housing	191	10.8	135	7.6
Commerce	3	.2	21	1.2
Industry:				
Light, general	143	8.1	6	.3
Heavy, general	177	10.0	1532	86.5
Sanitary landfill site (required to be in Heavy Industrial zone)	323	18.3	—	—
Sewage plant	35	1.9	—	—
Recreation	4	.2	—	—
Other community uses (i.e., schools, churches, non-profit organizations)	32	1.8	—	—
Vacant	772	43.6	—	—
TOTAL	1772	100	1772	100.

*All categories include streets.



Schematic Design for a Portion of Wildcat Creek

This sketch plan is intended to illustrate the type of recreational development that could take place along the creek in conjunction with flood control work. It is not meant to define the precise design or location of these facilities.

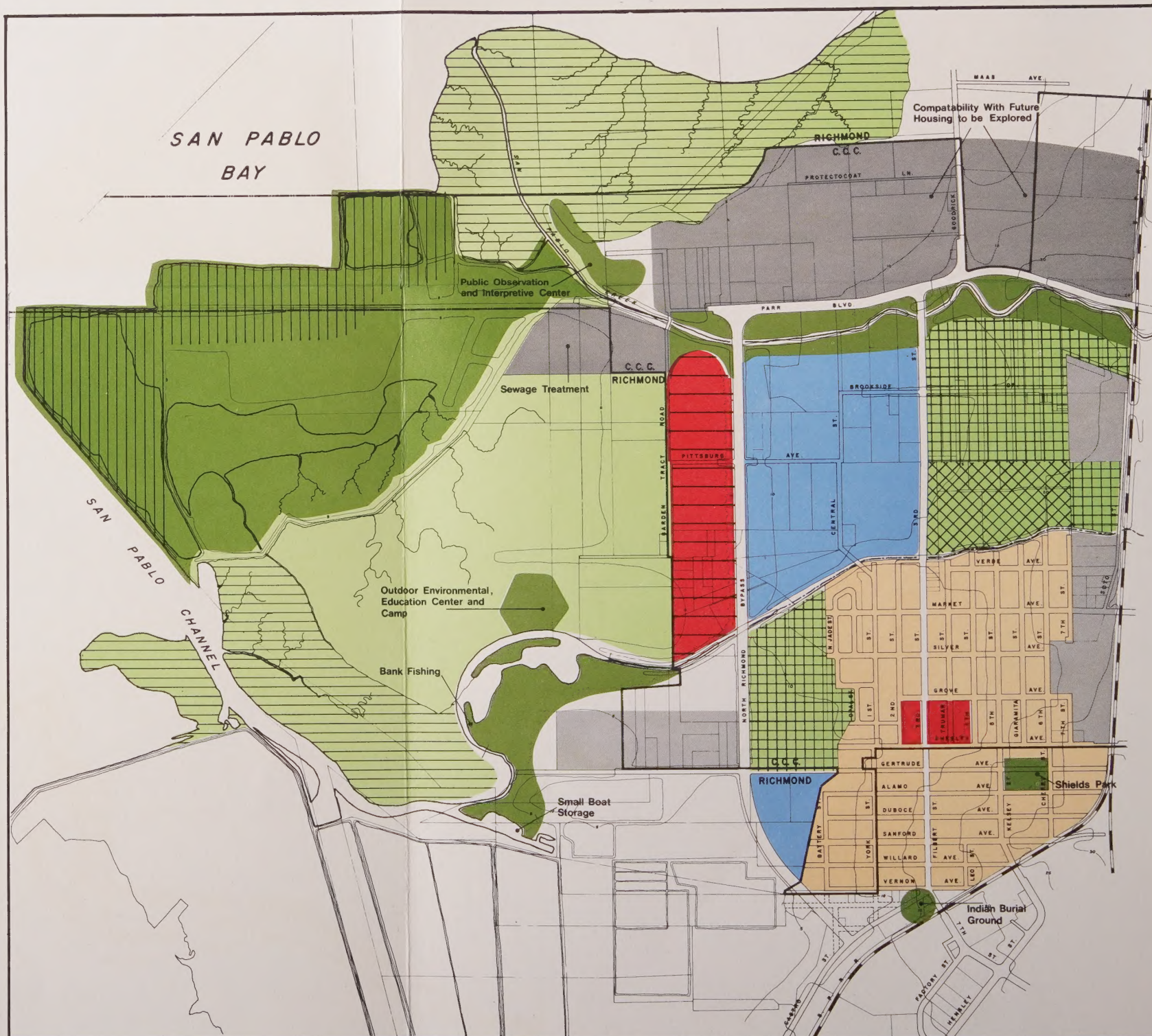
The recreation element of the North Richmond-San Pablo Bay Area Plan does far more than merely provide recreational facilities for a community that lacks them. To a large extent it makes possible all other plan elements.

Proposed open space reserves provide a buffer between industry and residence, which can help insure that the two uses can co-exist with the least possible friction. By putting the community in a park-like setting, the changes for expanded and upgraded housing are greatly improved. By developing regional recreational facilities, the opportunity for local economic development and employment through owner-operation of concessions and ancillary services is increased. By utilizing the flood control project in a multi-purpose way, not only is the flooding problem resolved but funding potential greatly increased for neighborhood recreational facilities in an area that is not served by a public recreation agency.

IMPLEMENTATION

Several alternative organizational forms have been suggested, both on a long and short-range basis. These include annexation of North Richmond to the City of Richmond, County assumption of responsibility, establishment of a Joint Exercise of Powers Agreement, continuation of the Joint Agency Committee in its present status with the County Planning Department continuing call and chair meetings, and coordinate necessary work with Model Cities being responsible for staff support. The last suggestion has been adopted as the best immediate course of action and will be in effect for the next year.

Implementation of various elements of the plan need not be contingent upon adoption of the plan as a whole, however. One major piece, the storm drain grant from HUD, was recently awarded to the County and will be administered by the County Flood Control and Water Conservation District in coordination with the City of Richmond Public Works Department and the San Pablo Sanitary District. Other portions of the plan will be assigned to appropriate agencies and carried forward as part of their on-going planning and program development.



LEGEND

- Existing Community
- Future Housing
- Commercial
- Commercial Recreational
- Marshland Preserve
- Wildlife Preserve
- Shoreline Recreational
- Nurseries
- Verde School
- Parks
- Light Industrial
- Heavy Industrial

Proposed Development Plan



